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GLEANINGS IN BEE CULTURE
A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS
ILLUSTRATED SEMI-MONTHLY
PUBLISHED BY A. I. ROOT
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Vol. XX. JANUARY 1, 1892. No. 1.

STRAY STRAWS

FROM DR. C. C. MILLER.

THE BEST MOTH-EXCLUDER, the *Bee-keepers' Magazine* says, is the bee. Right.

MOST BEESWAX, R. F. Holtermann thinks, is injured by too much heating in rendering.

NAPTHALINE, the *C. B. J.* suggests, when used in a hive, may injure the flavor of the honey.

THE *Bee-keepers' Magazine* is the latest name of the monthly started in Minnesota that was first *The Bee Journal* and then *Northwestern Bee Journal.*

EIGHT YEARS the Bee-keepers' Union has existed, and the same officers have been elected each year. The manager urges the election of new men. He's right.

AND NOW it's out what ails Hasty. He's a posy-lover! Aren't you ashamed, Hasty? But if the bees like flowers so well, what else can be expected of their owners?

THE *C. B. J.* proposes to open a free intelligence office for those who want to serve an apprenticespip at bee-keeping, and for those who want such apprentices.

I WONDER the senior editor didn't start a carp-pond with the waste from that artesian well in Dakota I suppose he'll erect an artesian well in Medina when he gets home.

STRAY STRAWS in last number of GLEANINGS says each State at the World's Fair would have ten square feet for a bee-show. The types or I made a mistake. It should be ten feet square.

"DANGEROUS ADVICE" is what the *C. B. J.* terms the advice of the *B. B. J.* to disinfect the combs of foul-broody stocks with the fumes of burning sulphur, said combs to be then used as safe.

A MAMMOTH CONVENTION of bee-keepers at the World's Fair, lasting one or two weeks, with all the great bee-lights of Europe and America present, is proposed by D. A. Jones. Why not?

IN FRANCE they are cultivating a plant parasite that is death to the white grub, the larva of the May beetle. What a blessing if we could have some parasite for wax-moths and foul-brood germs!

THE *A. B. J.* has no less distinguished a correspondent than Thos. Wm. Cowan, of the *B. B. J.* The occasion was an article in favor of Punics, and Mr. Cowan rather more than hints that there are no such bees.

SO, MRS. HARRISON, bees "have a picker but no biter." Well, well; Root, Cheshire, and all the authorities will have to correct their books. Say, do bees use their "pickers" down your way to climb out of feeders?

ALPAUGH'S NEW METHOD of handling bees comes in for a good deal of discussion in *C. B. J.*, and great things are claimed for it; but so far it is a profound secret, and Mr. Alpaugh himself is expressively silent about it.

THE BEE-KEEPERS' UNION is on the up grade. Fifty per cent increase of members in one year! It's doing good work, and the membership ought to more than double for the coming year. Send $1 to T. G. Newman, and become a member. It may save you $100.

SCIENTISTS must be suppressed along with anarchists and all other *ists.* Here they've gone and invented microbes, bacteria, and things of that sort, to give us grip, foul brood, and every thing else. Fifty years ago the air wasn't full of such things, and people got along better without them.

SECRETARY HUTCHINSON, speaking of the action of the Chicago convention relative to grading comb honey, says, in his report, "The adoption of these rules was really the most important work done by the convention, and perhaps the most important that will be done by any convention this year."

VASELINE, the *C. B. J.* thinks, might be a good thing to paint lightly over a queen to be introduced, with the supposition that, as it drives robbers away, it would drive away from the queen any bees that might try to sting her. I'd rather try it on a cheap queen first. It *might* have just the opposite effect.

A CORRESPONDENT says he has been watching GLEANINGS in vain to see what was my crop of honey the past year. From 236 colonies I got about 8600 lbs. of comb honey, or 36½ lbs. per colony. Although living not 20 miles away, he took only 150 lbs. from 80 colonies, or about 2 lbs. per colony. But he sometimes gets honey, I think, when I fail.

AFTER ZERO WEATHER it is again milder, and Dec. 20 bees could fly outdoors, the first time since the last week in October. So you see there was nothing gained by leaving them out after the last of October, unless they were left out till Dec. 20, and I'm afraid the flight on that day would not counterbalance the harm done by the previous zero weather.

WHAT MAKES people paint the inside woodwork of their houses, when pine or any other wood is so much handsomer, and costs no more finished off in its natural color? I'd rather have it finished with nothing but linseed oil rubbed on with a rag than to have the finest job of painting. But I'd like still more to have something better than the oil and rag.

GRADING HONEY is one of the things that I suspect will not be settled in a day, and it may be well to thoroughly discuss the matter in print. I'm anxiously waiting to see what was done about it at Albany, but I suspect it will still be open for discussion. Unless they modia good thing, and will prove a boon to bee-keepers. It is likely that further improvements will be made in the near future; and if he will adopt such suggestions as are valuable, much will be gained. In these days of study and invention, one man can hardly hope to know it all; in fact, most of the implements used in bee-keeping are the joint invention of many.

There is one thing more that I wish to mention in connection with the hiver; and that is, that we often have hives containing comb and honey that we wish to put our first swarms into. Now, it will not do to place such hives to receive the swarms, on account of moths and robbers. In such cases I use an empty super on top (how would it look if placed on the side?). Now, when the swarm is in the air, and the queen in the upper part of the swarmer, I unhook it from the super and slip a piece of tin behind it, so the queen can not escape. Remove the old hive, and place the one with combs in on the old stand, and the part of the swarmer with queen in, in front of the entrance, removing the tin. It is not best to remove the swarmer for several days, as the bees may take a notion to abscond. I have several times liberated the queen an hour or two after the swarm was hived in this way, but soon found them all in the air again, and had my work to do over.

I can fully agree with Mr. Alley, that the swarmer greatly lessens and retards swarming. On this account, as well as not tolerating a horde of drones in every hive, bees will gather more honey per colony with the swarmers than without them. Mr. A. is certainly mistaken in his statement, made some time ago, that two or more swarms issuing at the same time through the swarmers would each return to its own hive. They won't do that in Illinois. I have used swarm-catchers for more than fifteen years, and in such cases I still use them, and they are just as good with the hivers to prevent doubling up as ever. C. H. Dibbern.

Milan, Ill.

GIVING A LAYING QUEEN TO A PARENT COLONY.

LOCATION, AND ITS BEARING ON THE QUESTION.

Question 197, found on page 928, December 1, regarding the giving of a laying queen to a colony having just cast a swarm, is a very interesting one, and one that has much to do with our honey crop if we are situated in certain localities. This whole matter of profit, resting on whether we should give such a queen or not, must be decided by our location. If the location gives a continuous yield of honey, then the giving of a laying queen immediately after swarming will prove a profitable investment; but if the location is one like the average location, which gives a good yield of honey at one or two stated periods during the season, then the giving of a laying queen at the time of swarming will generally prove decidedly unprofitable. We have been told for years that the bee-keeper who wished to secure the best results from his bees should have on hand, and give to swarming colonies, queens as above; and the reason advanced for so doing has always been, that the time lost by the parent colony in rearing a queen was equivalent to a swarm. I have experimented largely on this line; and the truth of the statement, that the time lost by the bees in rearing a queen in natural swarming is equivalent to a swarm of bees, is the first reason that it will not prove a success in locations similar to my own, which gives, at most, only two honey-yields each year. If it were bees I were after, the case would be different. With me white clover yields only enough honey to keep the bees breeding nicely, and prepares them so that they swarm mainly from June 20 to July 1. Our honey-harvest is from basswood, which blooms from July 10 to 16. Now, all who are familiar with natural swarming know that the bees are comparatively few in numbers in spring, and increase by the rapidly increasing brood produced by the queen, which, in due time, hatch into bees until a swarm is the result. By giving a laying queen to a colony immediately after it has cast a swarm, we bring about the same result (swarming) as before, for we place the bees in the same condition. The only difference is, that, having plenty of brood, they build up quicker, and are prepared to swarm in a shorter time. As this second prime swarming, brought about by giving the laying queen, comes right in our basswood-honey harvest, it cuts off the surplus honey; for it is well known that bees, having the swarming fever, do little or no work in the sections; and if allowed to swarm, the object we have sought after (section honey) is beyond our reach. If this laying queen had not been given, and we had worked so that no after-swarms had issued, we should have found that the young queen, which was to become the mother of the colony, would have hatched, as a rule, in eight days after the swarm issued, and in ten days more she would be ready to lay, which would bring the time of her laying at about the time basswood would be yielding honey nicely. During this period, between the time when the swarm issued and the young queen commences to lay, the bees, not having any brood to nurse for the last half of the time, consume but little honey; hence, as fast as the young bees emerge from the cells, they are filled with honey; for bees not having a laying queen seldom build comb in the sections. Thus, when the young queen is ready to lay she finds every available cell stored with well-ripened honey. At this point the instinct of the bees teaches them that they must have brood or they will soon cease to exist as a colony. A general rush is made for the sections; the honey from below is carried above, so as to give the queen room, and in a week we have, as a result, the sections nearly filled with honey, and later completed, if the season is not unusually unfavorable. In this way good results are obtained in such a location as this, while, if a laying queen is given, the basswood-honey season is nearly or quite used up by the colony becoming "sulky" with the swarming fever, if they can not have their own way.

After basswood we have a honey-dearth, hence the bees from the introduced queen are of no value, but, on the contrary, become useless consumers. On an average, it takes 21 days, from the time the egg is laid, to the perfect bee ready to emerge from the cell. Then, if the colony is in a normal condition, this bee does not commence labor in the field till 16 days old; hence the egg for the honey-gathering bee must be deposited in the cell 37 days before the honey-harvest ends, or else they are of no value as honey-producers. As the basswood is all gone before the eggs of the introduced queen become honey-producing bees, and as the larger part of them die of old age before buckwheat or fall flowers yield honey, a great gain is made by letting each old colony, having cast a swarm, rear their own queens, for thereby we save the expensive feeding of the larvæ, which are in turn to become expensive consumers of the honey of the hive.

These things are well worth looking into by every bee-keeper; and if brood-rearing is used advisedly, with an eye on our location, we shall find that great profit will result therefrom. The Rambler hits very close at this matter in his answer to query 197, where he says, "I want egg-laying to go on briskly when there is a prospect of those eggs hatching bees that will gather honey." In other words, if these eggs won't hatch bees that will gather honey, don't allow the eggs to be deposited. Mr. France also comes right to the point where he says, "If we should introduce a laying queen after the season was so far advanced, bees hatched from her eggs would never gather any surplus honey for us, as the season would be over before they would hatch out. I would much rather not feed brood at that time."

Reader, here is something worth carefully thinking over, for by such thinking along these lines much profit may come to you.

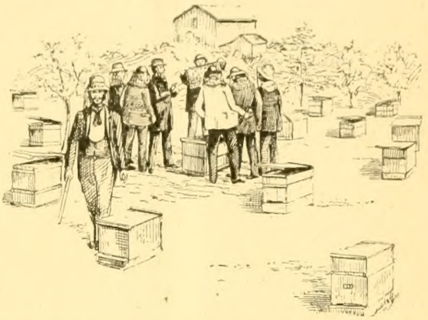
Borodino, N. Y., Dec. 17. G. M. DOOLITTLE.

[Your points, as usual, are well taken. Location, no doubt, does have a strong bearing upon the question. Right here may we suggest that this is one of the reasons why some of the large honey-producers remove their queens during the honey season?—primarily, of course, to stop swarming for the time being, and, secondarily, reduce the working force of bees at a time of year when there is no honey to be had. Bee-keepers should study well their locality. They should manage somehow to have a strong working force of the right age when they do have a honey-flow, and as light a force as possible when there is no honey to be had, and when the bees that remain are simply consumers.]

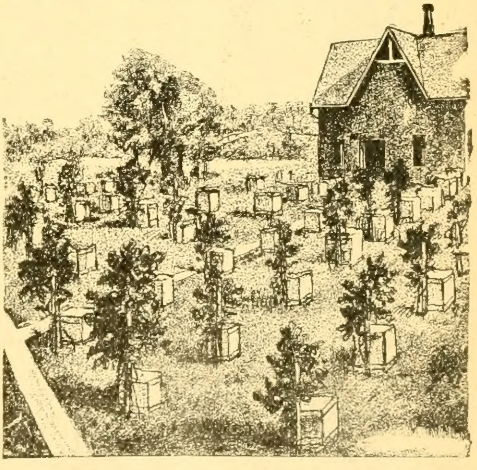
RAMBLE NO. 50.

MICHIGAN AGRICULTURAL COLLEGE.

Lansing, the capital of Michigan, is another name made familiar to a considerable class of people through the name of one man, and that is A. J. Cook, Professor of Entomology in the Agricultural College. His wide range of writings, and his valuable book on bee culture, have made his name familiar to all progressive bee-keepers. Recently calling to his aid my old-time friend J. H. Larrabee, of Vermont, the college had a sort of magnetic influence over the Rambler. We had together tramped the hills of Vermont and New York; rowed and fished for pickerel on their lakes, and can you wonder that, late one afternoon, I was in Lansing, hunting for the stage that would take me out to the College, three miles distant? At 4 o'clock the stage started from the postoffice, and, with a load of students, a keg of pickles, and some other groceries, we started. The road was excellent, but somehow the horses had a discouraged gait, and it was a relief to arrive upon the college grounds and have something else to look at. I soon found the apiary, and, anticipating that I would immediately see my friend Larrabee, I was astonished when a young man came to the door, his face lathered for a shave, and, speaking Frenchly, he was *sans skjorta;* but he evidently didn't "care a darn," and told me to sit down. When he finished his toilet he blossomed out into a good-looking young man, and I will introduce you to Fred, Bro. Larrabee's chum, studying engineering. If I remember right, he informed me that Mr. Larrabee was in the college kitchen experimenting in gastronomy. Our friend soon came in; and from his flushed appearance, his labors must have been arduous. We placed ourselves in a vis-a-vis position, and conversed on eastern themes, and particularly of the lakes and grand hills of Vermont. This portion of Michigan is a rolling country, and there are but few elevations that rise to the dignity of hills, and an Eastern traveler finds a journey monotonous; and our friend, who had been here for several months, missed his native hills. In the evening we paid our respects to Prof. Cook, who, after the arduous labors of the day, was resting in the cooling shades of the veranda.



PROF. COOK AND HIS CLASS IN APICULTURE.

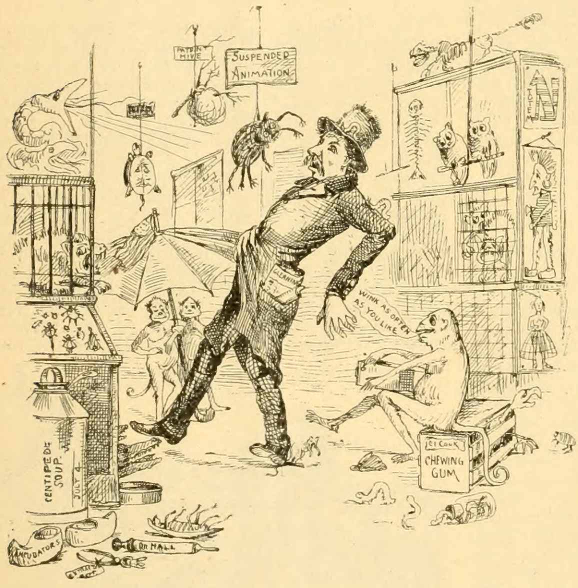


MICHIGAN AGRICULTURAL COLLEGE APIARY.

The Michigan Agricultural College was established in 1857, and is one of the oldest in the country. It has a farm of 600 acres, all under culture, and nicely located on a good stream of water. The many buildings scattered here and there among the trees remind one of those pretty summer-resort villages in Northern New York. Near the center is a campus, or playground, of several acres, where the students are put through military drill, and are taught to handle not only the musket but the big guns on the far side of the campus. Base ball and other athletic games are indulged in. It is an interesting and long journey to go through all of the departments and over the farm. I spent several days at the college, and found something new to study every day. A portion of the farm is devoted to experimental crops. In one section were a large number of varieties of wheat; in another, oats, and so with all seeds that will grow in this climate, all tested as to yield, and effect of different fertilizers, etc. Three hundred young men are here preparing themselves for future usefulness. The plan pursued is to give the theoretical or scientific education, and then put in the practical—study in the class-room, and practice in the field. In the study of entomology, for instance, when the insect *Apis mellifica* is studied in the class, a section of the class, headed by Prof. Cook, go out into the apiary, and the students manipulate the hive while Prof. Cook explains and directs. Our camera caught a very good view of the class thus occupied. Nearly all protect themselves with veils; but Prof. C. will be seen at the left in the center of the group, without a veil. Bro. Larrabee is approaching with a bold shirt-front. Many graduates of the college have taken up bee-keeping as a business; and among those who have made a stir in apicultural ranks is Frank Benton.

The college apiary contains about 80 colonies, nicely arranged on sloping ground, and shaded with grapevines. The grounds are in grass, and kept as beautiful as a lawn. The hives used are one-third Gullup, which I believe is the professor's hobby; one-third L., and one-third Heddon.

A commodious honey-house is located at one side; two rooms are devoted to the apiary. Another is Mr. Larrabee's reception-room, and in the rear is his boudoir, with a bed and a cot. Every thing in the house and apiary is kept in excellent order, and the Rambler really enjoyed the few days' sojourn. It was equal to camping on Lake George. Several experiments of a minor nature were in progress, and others will be followed up. Our friend Larrabee was just getting used to his new duties, and the fraternity should not expect too much from the first year's efforts. If bee-keepers have great problems they can not solve, send them to Bro. Larrabee, and he will give them due consideration. This place, if any in the world, can conduct careful experiments, for they have all facilities for practicing them.



RAMBLER AT THE AGRICULTURAL COLLEGE MUSEUM.

Connected with the college is a large and growing museum. In it are specimens of beasts of the field, historic and pre-historic; birds of the air; fishes, great and small; insects of all imaginable sizes, shapes, and colors; horned toads, lizards, centipedes, repulsive spiders, and, just to think of it! Prof. Cook can go into this endless menagerie and call them all pet names!

After an arduous day we sought rest with our friend in his boudoir; but that museum was too much for me, and I shall let the artist tell the nature of my dreams.

The present president of the college is Mr. O. Clute, who, a great many may be pleased to know, is the John Allen who wrote "Blessed Bees."

The glorious Fourth of July was ushered in with the distant boom of cannon. The college boys had made preparations to boom the big guns on the campus; but a lady in one of the cottages near was critically ill, and a request for quiet stilled all noisy demonstrations, showing that the young men were truly gentlemen in their deference to the sufferings of others. As there were celebrations in many towns a few miles out, the college was nearly deserted at an early hour. John H. L. said we would go to Grand Ledge, about 12 miles out, where there was to be a great celebration. On the way we would hunt up Mr. Jacob T. Timpe, the bee-man. We walked to town, secured a livery rig, and journeyed out through a monotonous country. We commented on the various phases of farm life, large farms, small houses, and no barns; we saw but few places that came up to our eastern ideas of such things. The monotony of our journey was at length relieved by coming to a considerable hill. Bro. L.'s love of home and his hills, and his glowing patriotism, got the best of him, and he was going to enjoy that hill, even if it took all day. Hurrah for the hill! The Rambler shared somewhat his enthusiasm, and, after an exhaustive time, swinging our bandanas and hats, we proceeded to Mr. Timpe's. We found him hard at work in his apiary, close beside the road. Said he to Bro. L., whom he had previously met, "Is that the Rambler feller you have with you?"

Mr. T. had his yard full of hives and nuclei, and was raising queens at a high-pressure rate. We first had the impression that the hives were arranged by driving a load into the yard and letting them drop out at the rear, as we once read in Gleanings; but Mr. T. didn't do that way. A cyclone must have picked up a hive here and there in various States, with a few board fences and chicken-coops, and landed them all in Mr. T.'s yard. But Mr. T. had a new yard in mind, and no doubt he now has one equal to the college apiary. He handled his bees without smoke or veil, and seemed to be proof against stings. Mr. T.'s were of the five-banded order, and his method of rearing a combination affair. Strips of drone comb were cut *a la* Alley, larvæ inserted *a la* Doolittle, and the strip pinned on the side of a comb *a la* Timpe. We were shown several very fine queens. Mr. T. is a young man, and evidently cut out for a progressive bee-keeper.

We went to Grand Ledge to celebrate; found the little town full of people celebrating on a roller toboggan slide, and rowing around in a sort of duck-pond. The Grand Ledge from which the town received its name was about 50 feet high. We soon tired of this tame celebration, and returned to Lansing via another route. I dare not trust my friend near that hill again.

The gossip around the campus the next day was about the episodes of the Fourth. Fred had won a prize in a foot-race; another student was in a fight; another came back the worse from beer. So the Fourth passed into history, and on his journey again passes the

RAMBLER.

[The Michigan Agricultural College is a grand place to visit. It is an institution that the State of Michigan may well be proud of. By no means the least important personage of the college is Prof. Cook. In fact, he is more widely known for his researches and writings than any other instructor or professor in the college.]

BOUNTY ON HONEY.

A GOVERNMENT STAMP ON HONEY, AND WHY.

The meeting of the Illinois State Bee-keepers' Society at Springfield, on the 16th and 17th, was pretty well attended, especially by bee-keepers near Springfield. I was quite sorry not to see Messrs. Miller, Dadant, and Newman present. Still, I believe that considerable good has been accomplished. The proposition of the Northwestern was gladly received, and the request to meet in Chicago once each year was unanimously acceded to. There, now, brother bee-keepers, not only of the northern part of the State of Illinois, but all of you in reach of Chicago, come and help us make the Illinois State Bee-keepers' Association what it ought to be. Our interests are one and the same, and we ought to see to it that the annual appropriation is well expended. This society ought to take hold of the World's Fair business. Of course, I don't think that it ought to try to monopolize the honey and supply exhibit, but it ought to have a committee there, at least, to welcome the bee-keepers from other States and from all over the world.

There is one thing that I think ought to be agitated everywhere, and as often as possible; and that is the two-cent bounty on extracted honey. The comb-honey production doesn't need it. Now, were the bounty the only thing in it I don't know that I should think it so important. But, here: let the government go to placing a stamp on what honey is actually produced here in this country, and the adulteration of extracted honey is at an end. See what the government does for the liquor interest. It not only labels and stamps their different brands, but places a penalty on using their packages a second time. If we can only get this bounty on extracted honey it will do more to lift up the bee-business and encourage the bee-keepers than any thing else I know of, for it will soon make an almost unlimited market for extracted honey, for every one will then have confidence in the purity of what he is purchasing, for then there will be the government's guarantee as to its purity on every package. What more could any purchaser ask for? Besides this, there is no doubt that the darker grades of honey have got to come in direct competition with sugar that does get a bounty from the government. Now, why should the sugar interests have an advantage of over 25 per cent on their output, and the honey interests be forced to compete with them for a market? Such a condition of affairs is manifestly unjust, to say nothing of being forced to compete with a mixture of glucose. The government would, in this way, take the very best census of the bee-keeping interest that it would be possible for us to have.

I had the pleasure of visiting the Lincoln Monument in company with Mrs. Harrison, while at Springfield. She agreed with me that, if we could get this government stamp on extracted honey, it would be of immense advantage to bee-keepers. She seemed to think, also, that the bee-business is becoming rather risky, with the present prices for honey, and the fact that the bee-pasturage is year by year becoming poorer and poorer since the amount of land that is not tilled is becoming less and less. Low wet places, that were formerly too wet to be cultivated, were the natural home of plants producing honey, but they are now either being ditched out or else underdrained. At Peoria, where her bees used to get an abundant harvest, it is now occupied by a thriving city.

FURNISHING REPORTERS MATTER RELATING TO CONVENTIONS.

In returning home, a reporter who had seen me in the meeting came and sat down by me, and began to make inquiries about bees and honey, and about the association. He went on to say that they would have been glad to give the bee-keepers two or three columns of matter in their journal, while there at Springfield, if they had had any way of getting the copy. I wonder if we can't get the conventions to take the hint, and have a committee to prepare copy for the reporters when they come around—have it ready for them. In this way a large part of the public can be reached and educated in regard to honey and bees that can not be reached so easily in any other way. Instead of growling at what daily and weekly newspapers publish, try giving them facts, in a readable shape, to publish. A. N. DRAPER.

Upper Alton, Ill., Dec. 19.

[We believe this is an important question, but it is one on which we are not yet prepared to give an opinion. We hope it will be thoroughly discussed in the next few weeks, both as to the desirability and feasibility of having a bounty on honey. Mr. Elwood touches on this same point in his president's address, which we will publish in our next issue.]

BEES OF ITALY, AGAIN.

ITALIANS A FIXED RACE; AMERICANS TRYING TO IMPROVE THEM.

I noticed a communication by Arthur T. Goldsborough, on page 842, 1891, in which he asserts that the bees of Italy are not three-banded. I was in hopes some of the older writers would give us a chapter on the color of the Italian bee; but so far I have not seen such a communication. It seems strange that this writer, being as close an observer as he claims to be, should assert that no bee would show more than one yellow band. Now, the fact is, among all classes of bees, all mixtures and crosses, I have never been able to find a single bee with only *one* yellow band. Wherever I find a bee with yellow on any bands, there is yellow on the three; and, again, if the bees of Italy are not three-banded, how comes it that, of all the bees that are yearly imported from there, no importer has received a single bee that does not show the three yellow bands? Any importer will guarantee this. Another thing, all the queens that are brought from Italy are not tested queens. Especially last spring, the breeders of Italy could not fill all their early orders with tested queens, and get them here as soon as the importers wanted them; and yet the bees of Italy, so far as I have seen them (and I have received queens from several breeders in various parts of Italy), are three-banded. The bands are not bright yellow, but more inclined to be red; and I believe *the darker colored these bands are, the better workers the bees prove to be.*

I notice, both by the circulars of breeders and by several letters which I have, that the first thing the average American tries to do is to improve the Italian bee. This is a characteristic of the American, and "improvement" is his motto; but how is a person to undertake to improve a thing that already has fixed characteristics? I find that this "improvement" (?) consists in making it yellow, *yellower*, YELLOWEST.

While I have no objection whatever to these yellow bees, and have and intend to continue to keep the yellowest bees procurable, yet I will say for them that they will not reproduce themselves. Out of ten queens from a five-banded mother, mated in an apiary where drones from five-banded mothers abound, not more than two of the untested queens will prove to be five-banded. I find the five-banded bees as gentle as the imported stock; but the bees from queens of five-banded stock that produce bees with only three bands *are not gentle.*

Last season there were many of these queens sold. Last fall at the fairs I found many disappointed purchasers of them. They had bought untested queens of them, expecting to get some five-banded. They had failed, and consequently they were disappointed.

The Americans have bred the short-horn until he is a fac-simile of the Devon. They have bred the Poland-China until a whole field full of experts can not tell a Poland-China from a Berkshire, ears alone excepted. And they have bred the Italian bee until it is identical with the Cyprian. Now, this has not all been done by "judicious selection."

When there is a demand for any type of animal or bee, the Americans are going to supply that demand, and do it right speedily.

Why is it, Mr. Editor, knowing as you do the nature of the imported bees to produce workers almost identically the same, you charge about double for a queen from an imported mother, that herself happens to be a little yellower than ordinary? W. C. FRAZIER.

Atlantic, Ia., Dec. 16.

[Our experience as importers is quite in line with yours. Next to the Italian bee-keepers themselves, the importers who receive annually large consignments of queens from that country ought to be in position to judge of the general characteristics of the bees. It is our experience that imported Italians are as fixed as any race of bees known, in their general characteristics, with the possible exception of the black, or German race. Of the hundreds of queens we have imported from Italy, we never saw any four or five banded progeny from any of them; neither have we seen any one-banded progeny. They have been uniformly three-banded bees, though in the progeny of a few the third band was quite indistinct, and some would pronounce them only two-banded. It is remarkable that the bees of Italy should show so generally such fixed qualities, and that these qualities should duplicate themselves so nearly in the first generation. It is a fact, as we have often repeated, the bands of the importeds are leather-colored, or, at least, a dark yellow; and these darker bees have so far given better results in honey. We therefore take the liberty of putting in italics what you say on this point.

It is true, that Americans will endeavor to give people what they want; and because there is a demand for yellow queens, and because of the fact that only a few of them are among the daughters of imported mothers, we have had to charge more for them; but as we say in our price list, their bees will have no more than three yellow bands, nor will they be any better honey-gatherers than those from darker daughters. In regard to the article of Mr. Goldsborough, you will see, by turning to page 948, Dec. 15, that he must have visited only a few localities in Italy, or else he observed very carelessly. Although not intending to misrepresent, his article gave a very incorrect idea of the kind of bees found in Italy.]

THE HUBBARD BEE-HIVE.

ITS MERITS SET FORTH.

Friend Root:—As brood-frames with fixed distances have attracted so much attention of late, I think it possible you will be interested with a description of the Hubbard hive, which in a measure combines both fixed and movable distances. It was patented Jan. 16, 1883. The main objects attained by having my brood-frames hung in this way are:

1. They can be swung out to the left, giving plenty of space in which to remove combs without danger of scraping them together.

2. They are spaced 1½ inches from center to center, at the front end, and at the rear end of the frames a long staple sets in fine, deep, saw-tooth notches which allow the frames to have their distances varied, and at the same time stay where they are put, as the frames will not move unless the hive is turned on its side. The adjustment at the rear end allows a queen-cage to be introduced, or the distance to be varied to accommodate combs of different thickness.

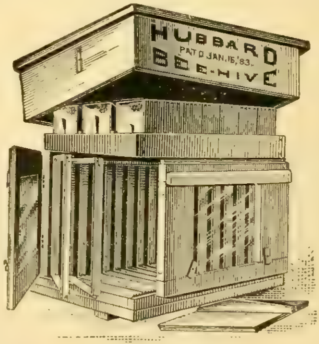
3. Each end of the frame has a projecting nail at the upper left-hand corner and a long shallow staple below; therefore the frames may be hung either end front.

4. Frame-bearings are metal, and, being, small, do not get waxed fast.

5. This accomplishes the fixed-distance idea without danger of crushing bees between wide end-bars or top-bars, and with no projecting top-bars to catch them.

6. The staples in the bottom of the frames keep bees from being crushed under the bottom-bar when you set a frame to one side on a flat surface.

7. When returning a frame to the hive you find it practically self-adjusting. Get it somewhere near its place, and large notches in its tin bearings at the front end guide it instantly to its place, while you swing it to the point at which you wish it at the rear.



8. Hives ought always to slant a little toward the entrance. This hive does; and by having a frame—hanging below at the front end, a bee-passage is always maintained; the frame does not sag and get waxed fast, nor make a harboring-place for vermin.

9. The apiarist does not break his back looking over his brood-combs. Several years ago, when our friend Hutchinson was in the queen-business, he gave us a description of the backache from handling bees that many will remember. Well, with this side-opening hive you drop down on one knee, sit on your heel, and handle your bees with an ease you would hardly believe possible. As to finding queens, it is usually done without removing the frames from their front hangings; swing them around and look down between them.

Are these points honestly taken? Come and see for yourself. Seven miles from the city is Albert H. Grover's Hubbard-hive apiary of from 125 to 150 colonies. This is where my bees and queens are raised. Any man within, say, 300 miles of here, who will ship 50 colonies of Italian bees to this apiary in any other hive, and find all the queens as quickly and easily as Mr. Grover will from 50 of his colonies of equal strength, will have his moving expenses paid, and good wages for his time. Is the hive expensive? No more than other single-walled hives. Is it complicated? Many practical bee-keepers, after seeing the hive itself, say it is much more simple than they expected after reading printed description. A break-joint honey-board is used between brood-chamber and super. Several thousand of the hives are in use in over twenty States. G. K. HUBBARD.

Fort Wayne, Ind., Dec. 12.

[As the question of fixed distances and the finding of the queen by *not* removing the frames has of late been agitated, we asked Mr. Hubbard to give us some of his experience along this line, in connection with his hive. We have no doubt that he can, many times, find the queen without removing a frame; but for some reason or other, side-opening hives have never been popular with the masses of bee-keepers.]

THE IMPORTANCE OF SEPARATORS.

SHALL WOODEN SEPARATORS BE THICK OR THIN? THE SERIOUS INCONVENIENCE AND COST IN HAVING THEM WET WHEN PUT IN SECTION-CASES.

I have always had quite an opinion as to the importance of separators, and latterly I have raised my opinion as to their importance. A good many imperfect sections I have traced to imperfect separators. That is, if a section is nearly finished, and then is moved to some other part of the super where the separator is not exactly like the one where it had been, then wherever the separator comes a little too close to the section the comb is likely to be gnawed away, and little bridges of wax built from the comb to the separator. I have seen a section, one side of which was entirely finished, have its finished side nearly all unsealed just because, when moved, the space between comb and separator was not as great as it had been in its first position. And although I am not sure of it, I think there have been cases where the warping of a separator made trouble with a section, although its position had never been changed.

I think it is pretty generally agreed that wood is better than tin for loose separators; and as a large proportion of separators used are loose, it becomes an important matter to know just what is the best wood separator. I have seen separators a quarter of an inch thick, and it always seemed to me like a waste of lumber and super room. Still, I never used any of that thickness, and it is possible that they may have advantages of which I do not know. When wood came to be largely used for separators, and they consequently came down to a very moderate price, I decided that the labor of cleaning them of propolis after being used was worth more than the cost of new separators. So for several years I have used for kindling-wood most of my old separators.

Then the question arose: If they are to be used but once, is it not worth while to try very thin separators? So I have tried different thicknesses, from $\frac{1}{30}$ of an inch to $\frac{1}{16}$ or thicker. The very thin ones seemed to me more desirable because they would take up less room, make a little less chance for propolis in cracks, and especially because they were tougher. For it seems to be true that a very thin separator will be sliced off without breaking the grain of the wood as much as it is broken in one twice as thick. But upon trial I did not find the very thin separators desirable. Sometimes the bees would gnaw away a considerable portion of one edge, and sometimes the separator would curl, as it appeared to me, solely because it was so thin. On the whole, $\frac{1}{16}$ may be the best.

A knot in the wood, no matter how small, is fatal to its fitness for a good separator. Sometimes a separator will be curled a quarter or half inch out of true where no knot can be seen; but the grain of the wood shows that it was in the neighborhood of a knot, and for some distance from a knot the grain is generally twisted enough to allow considerable warping in a very thin piece.

I don't know what is the best wood, but I am inclined to the belief that poplar or whitewood is not so likely to curl as linden. It is possible, however, that more knots were allowed in the linden that I tried than in the poplar.

I once got a lot of separators that were not thoroughly seasoned. In fact, they were quite wet. You would hardly believe the damage those separators were to me. Being wet, they were too wide, so that I could not put in the little ¼-inch separators on top; and the curling! and the twisting! In some cases, in spite of their being pressed between the sections, they bent over fully half an inch out of place. And if a section had its place changed, or if a number of unfinished ones were put together in a super to be finished up, then there was fun. Many a one of those sections came out of the super more unfinished than when it went in. If I ever get any more wet separators I'll put them in the fire to dry, and I'll let them stay there till they've dried into ashes.

What should be the length of separators? I'm not sure about it, but I think about an eighth of an inch shorter than the inside of the super. That's the length I've used them, but possibly I might like better to have them only a sixteenth shorter. If the least bit longer than the space they are to fill, they are very troublesome to get in, and can be got in only by a bend somewhere in their length. If too short, one end gets inside of a section, and then the trouble is still worse.

A further trial, during the past season, in all my supers, of the little separators on top, confirms me in my liking for them. Although I had forgotten about it, I first saw them used by B. Taylor. My supers are 17⅜ inches long inside, and four 4¼ sections take up 17 inches of that, leaving a ⅜-inch play at top, for the T tins take up the play at bottom. Now, that ⅜ at the top is entirely too convenient a place for bees to fill with propolis, and I want it *entirely* filled with something else. Three separators, each ¼x⅛, just exactly fill it. I supposed the fit would be so tight that it would be almost impossible to force these little separators into place; but in actual practice I find no great difficulty. Besides keeping out glue, they are useful in keeping sections perfectly square. I had a box of sections that made up so much out of square that I set them aside and stopped making them. Many of them were so much out of square that, when put in the super, one corner of the section stood up a quarter of an inch or more higher than it ought. If pushed down into place, they would immediately spring up again. But with the little separators I found I could use those same sections. They were squeezed so tight that, when pressed down into place, they were held there. I heartily commend these little separators to every one who uses the T super. C. C. MILLER.

Marengo, Ill., Dec. 15.

[Your experience seems to be quite in line with our orders. The call has been for separators, as a general thing, not thinner than $\frac{1}{16}$ of an inch. Some have called for even thicker ones. When sliced up, the grain is more or less broken. It would be desirable if we could saw them and yet not have them expensive.]

FEEDING BEES CANDY FOR WINTER.

A. N. DRAPER GOES THROUGH A LITTLE EXPERIENCE.

On page 9 of "Advanced Bee Culture," Mr. Hutchinson says: "If by any hook or crook the bees have gone into winter quarters short of stores, and there are fears that some may be starving, it is better that they be examined and fed if needed, even though the task is unpleasant. There need be no hesitancy in thus disturbing the bees for fear that it may do them some injury, for, as a rule, it will not. If some colonies must be fed, and no honey is available, the best substitute for honey is candy made of granulated sugar, put in sufficient water to dissolve the sugar; then boil the syrup until it will harden in cooling. Watch it carefully and try it frequently. As soon as it is sufficiently hard, remove it from the stove and pour it into shallow dishes to cool. Be careful not to get it too hard."

On page 154 of "Bees and Honey," Mr. Newman says: "For winter feeding, use four parts coffee A sugar and one part water; simmer until it becomes quite hard on being cooled; mold into frames of one inch in thickness, and lay it on top the frames, using sticks underneath, one-half inch square; or mold into brood-frames; tie hemp twine around to hold it in place, and put it in the center of the brood-chamber."

There, I tried to do it! but I suppose that both my A B C book and Langstroth Revised have been loaned, or else sold, as neither one of them could be found. It was real cold, and an out-apiary of about 70 hives, in which I have only a half-interest, and which is about eight miles away, was found to be almost destitute of stores. As I had been badly crowded all the fall with my business, I had left the care of this apiary to Mr. Dorsey, and he probably overestimated the amount of stores that these hives contained. None of them had been moved to the lake, and had had the honey-dew taken off in August. They are in eight-frame Simplicity hives, consequently too much of what they had on hand in August was taken away from them. Well, I made up my mind that the best way that these bees could be fed would be with "candy." How can I manage to get enough shallow vessels to hold a barrel of syrup? After thinking a while I concluded that No. 5 butter-trays were what I needed, so I sent down for a crate containing 250 of them. It cost me 75 cents. I have a large stove-kettle, capable of holding 30 gallons. I use a tin can inside of this kettle for liquefying candied honey. If the syrup is made inside of the can with water around it there would be no danger of getting the candy scorched. If scorched, it would be worthless for winter feed. But then, if I get it too thin it would be a slow job to cook it down, in this manner. As it had been thoroughly cooked in making the sugar, what good would it be to put a lot of water in it to boil out again?

I made the candy in this way: I first weighed 25 lbs. of water and placed in the can. When it got boiling hot I weighed 25 lbs. of granulated sugar, poured into the water, stirred it until it dissolved, then poured in 25 lbs. more sugar, and stirred until it dissolved. One hundred pounds of sugar will all dissolve; but in order to get it to harden so that it will harden sufficiently to haul to an out-apiary it is necessary to put in from 15 to 20 lbs. more of sugar. Now, it is necessary to place the butter-trays on the floor, or on shelves with a small stick under each side of the trays, to prevent them from turning over when filling, and while the candy is hardening. The trays hold about 2 lbs. of candy each. I fixed up nearly a barrel in this way, and took it out and placed it on top of 51 hives. The following card, received from Mr. Dorsey, will explain matters.

Dear Honey:—Your candy is going fast. It is dry and hard, and all gone back to sugar. I think they are carrying most of it outside. Better come out right away before it is all wasted. DORSEY.

Moro, Ill., Dec. 11.

There! A. N. DRAPER.

Upper Alton, Ill., Dec. 15.

[Now, look here, friend D. You led us to believe you were going to make a grand success of your venture; and just at the point when our expectations were raised to the highest notch, you turn the tables by quoting a card from your neighbor Dorsey. As Josh Billings said, "Eggsperiens teeches a good skule, but the tuishun comes purty hi." Joking aside, as nearly as we can make out you did not follow directions carefully. Your candy was too hard. Notice the last clause from your quotation from Hutchinson. In order to be suitable for the bees there should be enough water incorporated in it to make it tolerably soft, and yet hard enough to hold its own. We have made candy, and poured it on butter-dishes, as you say, and it worked beautifully. It might not have been a bad idea for you to have tried a little at first, before melting up the whole batch. We have had some experience ourselves; and if you were to turn to the subject of Candy in the A B C book you would find this: "Perhaps you had better try a pound or two first, while you get your hand in. Our first experiment was with fifty pounds. It all got 'scorched' 'somehow.'" You might have used Good (or rather Scholz) candy and been perfectly safe.]

MELILOT.

SOME INTERESTING EXPERIMENTS FROM H. R. BOARDMAN.

Dr. C. C. Miller sends a letter which he has received from H. R. Boardman, and suggests, as it comes from such a source, and as it seems to be so well worthy of publication, that we give it insertion in our columns. This we are very glad to do; and if friend Boardman has any further facts we should be much pleased to hear from him again, more in detail. We are very sure he will have no objection to being lugged into print in this way.

Dr. Miller:—You may remember that, at the Columbus convention, I expressed a good deal of confidence in regard to the value of sweet clover as a forage-plant for stock. There was considerable discussion on the subject. If I remember rightly you were among those who sympathized with my own views. The proof of the pudding, you know, is in eating. I am collecting some of this same kind of proof in regard to sweet clover. I am now feeding it to my cow once a day. She seems to eat with a relish all that I give her, to the least and last leaf and stalk. This clover was of the first year's growth from the seed, and grew thick and fine, and was cured in good condition late in the season. I feed it to my horses. They eat it, but I think it is better for cattle and sheep. A farmer living near me, with whom I am well acquainted, has a strip of sweet clover growing along one side of a lot next to the railroad, where it spread from the railroad embankment. He pastured a flock of sheep in this lot last summer, and he said to me those sheep persisted in eating this clover when the feed was abundant elsewhere in the lot. He supposed nothing would eat it; but they did, and kept it fed down close. They seemed to prefer it. He did not know why. He regarded it as a nuisance, notwithstanding the evidence he gave in its favor. He is not a bee-man. So much for a bad reputation.

I have seven acres, sown last year. It will bloom next season. I am sure it can be raised on our hard clay land, and made profitable.

H. R. BOARDMAN.

East Townsend, O., Dec. 1.

THE NORTH AMERICAN CONVENTION AT ALBANY.

REPORTED BY ERNEST.

The Albany convention has come and gone, and only memory remains to recall the feast of good things. It was indeed a representative convention, perhaps more States being represented, and more miles traveled by bee-keepers, than to any other convention in the history of the association. Something over 100 railroad fares were paid to Albany, and many of these fares covered long distances. As was expected, there was a large number of distinguished bee-keepers present, although not all that we hoped would be. A. E. Manum and Mr. Frank Benton were detained on account of sickness, as were also the two doctors, Mason and Miller, much to the regret of all present. The doctors are a whole team in themselves, and are enough to make any meeting bubble over with enthusiasm. But we had other good men. Capt. J. E. Hetherington, the one bee-keeper who enjoys the distinction of being the largest honey-producer in the world, was present. He is full of vim and business push, it was easy to see. A delightful and interesting speaker, he fairly captivated the whole convention by his joviality and enthusiasm. G. M. Doolittle was another bright light. I had always supposed that he was more of a writer than a convention man; but I was very agreeably surprised. Like Mr. Hetherington, he is a clear and forceful speaker. C. P. Dadant and Hon. J. M. Hambaugh came from the Mississippi Valley, and Eugene Secor came from beyond the Mississippi River. They had come the furthest of any of the bee-keepers. Of these I'll tell you more in our next issue. There were also two representatives from Canada, in the persons of R. F. Holtermann and R. McKnight. I believe nearly every one of the New England States had one or more representatives. The New Hampshire Experiment Station actually sent one of its instructors, a Mr. Wood, to the convention, the ultimate object being to establish a school of apiculture. Of course, the York State bee-keepers turned out *en masse*, among them being J. H. Nellis, of the former *Bee-keepers' Exchange*; Julius Hoffman, P. H. Elwood, G. H. Knickerbocker, N. D. West, W. E. Clark (he's quite a driver in convention), Thomas Pierce, the two Coggshalls, I. Schofield — I guess I'd better stop, or somebody will feel hurt because I didn't mention his name.

This convention, while it lacked some of the enthusiasm of other meetings of the association, was remarkable in that there was not a word of discord uttered. The pleasantest and best of feeling prevailed at every session. With Drs. Mason and Miller, supported by Capt. Hetherington and Doolittle and the rest, the enthusiasm would have run high. As it was, it did not go down to a very low ebb.

Were there any women-folks present? Only one or two at a time, and that, too, after all I had said about bringing along the wives, sweethearts, and daughters! I'm not discouraged. I'll invite 'em to come to Washington next year, and they'll come.

Well, what about the convention? What did they say and do? More things than I have space to tell you. A very full report by that prince of reporters, W. Z. Hutchinson, will appear in the *American Bee Journal;* and if you are not already a subscriber of that journal, send 10 cents for a few sample copies, and you will be amply repaid. I will attempt to give you only a gist of the subjects discussed. The president's address is so excellent and important in its suggestions that we have decided to publish it entire in our next issue.

INCORPORATION, AND WHAT IT MEANS.

The North American is now incorporated under the laws of the State of Illinois. At the first session it was asked what incorporation meant, and why any particular State should take jurisdiction. It was explained that incorporation signified the making of the society into a legal body, and, so to speak, an individual capable of transacting business—one that can sue and be sued. As to localizing the incorporation, it was explained that a society, in order to be incorporated in the United States, has to come under the jurisdiction of some particular State; and as Illinois is centrally located, as far as the Northern bee-keepers are concerned, Chicago was thought to be an appropriate place for its headquarters. All other societies that are incorporated, whether fraternal or otherwise, are under the laws of some particular State, though in their practical workings they may be national. The North American had also procured medals, as per the clause in its constitution, and was ready to distribute them to affiliated societies when called for.

BEES, THE LOCATION, AND THE MAN.

Mr. Doolittle gave us an excellent talk on the subject above. The first thing of prime importance is the queen. We should not have excessive brood-rearing after the honey-season, but encourage it by all possible means *before*, so as to have a force of bees of honey-gathering age come on at the right time. As to location, most of us, Mr. Doolittle said, are bound by our environments, and therefore the location may be good or bad; but all honor to the man who secures good crops in a poor location. As to the man, he must be one of push—one not working to fill out so many hours, but working for a certain definite result. He must enjoy his work;

and the bee-keeper who has made a success must be an enthusiast.

BEES BETTER THAN FARMING; CAN BEE-KEEPING BE MADE A SPECIALTY?

A lively discussion followed after Mr. Doolittle sat down. It assumed all sorts of phases. For instance, "Do bees pay better than farming?" The reply was made that it did. As to whether it paid to make the bees a specialty, or mix in other things, was also discussed in a lively manner. While the majority evidently seemed to think it did pay, a few insisted that it did not. Capt. Hetherington was not sure whether he was a specialist or not. When a boy sixteen years old he wrote to Mr. Quinby, asking whether he had better make bees a specialty. Mr. Q. advised him not to do so, and suggested connecting it with dairying or school-teaching. The captain asked us to note how very few of the old bee-keepers who had made bee-keeping a specialty had made it a success. Mr. Doolittle was then asked the question as to whether he was a specialist or not. He was hardly prepared to say that he was. His main business now was queen-rearing, while, years ago, he produced comb honey. Why didn't he do so now? some one asked. Because, years ago, he got 28 cents a pound, and now it has come down to 12 and 15. While queen-rearing paid him, he also thought the production of honey would pay, even now. The feeling seemed to prevail that it is not wise to embark in bee-keeping hastily as a specialty. If you have already something that pays you well, don't dabble in bees.

CONTROLLING SWARMING.

A paper from W. F. Clarke was read, on the prevention of swarming. By knowing the cause we may bring about a cure. He asked, "Are not our hives too small, or overcrowded?" and added, "Is not swarming a great deal like emigration?" He believed in plenty of room, and in keeping the hives in a shady place.

Quite a discussion followed the reading of this paper. Most of those present seemed to acknowledge their inability to control swarming, and some others averred that they did not care to do so—it is nature, and nature should be gratified, because more honey is secured thereby. It was easy enough to control swarming when running for *extracted* honey, by the use of perforated zinc: but when it comes to the production of comb honey, it was another matter. The question then came up as to controlling swarming by caging or removing the queens, as is practiced by Elwood, Hetherington, and A. E. Manum. G. M. Doolittle and J. E. Crane could not make it work. President Elwood was then called upon. Some varieties of bees, he said, are much more inclined to swarm than others. They ran about 900 colonies for comb honey, and there was not one strong colony out of all that number that did not attempt to swarm. Half of this number they subsequently reduced in strength, and from the other half they removed the queens. From the latter they got more honey. Mr. West succeeded in controlling the desire to a very great extent by the use of his queen-cell protectors—that is, he would destroy all old queens just before the swarming season, and insert cells from choice queens in his protectors in the colonies made queenless. When the young queens got to laying, the swarming fever would be over.

THE ITALIAN BEE, AND HOW SHALL IT BE MARKED?

Mr. Knickerbocker read an essay on the Italian bee, showing the principal points of excellence. Italians, he said, work earlier and later, and breed up earlier, and store honey in the brood-nest. As to which quality we should give the preference, that depended upon circumstances. If we want bright colors, breed for them; if we want honey, breed for honey and good wintering qualities, rather than for bright colors or particular markings. But Italians have certain general characteristics and markings; and it would be very desirable to have a standard that the National Association could agree upon. It is now an undisputed fact, he said, that many Italians have been sent out that were mixed with Cyprian blood. Italians must be Italians, and nothing else.

A lively discussion followed the reading of this paper. Many took the ground that a standard could not be made; and the point came up as to whether the Italians are a pure race of bees or hybrids. The discussion grew "redhot," as the boy said; but every one "kept sweet." Doolittle averred that the Italians were hybrid, because they were so much inclined to sport, and that the black bee was the only pure race. Dadant and one or two others insisted that the black bee was not a pure bee—that there were varieties or sports of this race. The discussion waxed warm until a committee was appointed by the chair to follow out Mr. Knickerbocker's suggestions—that is, draw up a standard with a scale of markings for recommendation to the convention. This committee was composed of G. H. Knickerbocker, G. M. Doolittle, C. P. Dadant, and J. E. Crane. When the committee assembled, the old bone of contention was renewed, and they took sides, neither party being willing to yield to the other. I longed for a Kodak, or something to photograph them. It was a real sight to see them argue with their index fingers pointed toward each other. They finally compromised matters very nicely, and the report, with one or two amendments as adopted by the convention, is as follows:

WHAT CONSTITUTES AN ITALIAN BEE?

Italian bees must adhere to the combs when properly handled, and not cluster about, or rush around and fall to the ground. They must have three bands, of a color ranging from golden yellow to leather color. They must be quiet when well handled, and in time of scarcity must place their honey in a compact shape.

SCHEDULE OF MARKING.

Comb-building, 10.	Wintering, 15.
Honey-gathering, 35.	Gentleness, 10.
Prolificness, 15.	Color, 5.

APICULTURE AT THE COLUMBIAN EXPOSITION.

A paper was read by Dr. Mason, on the outlook of apiculture at the Columbian Exposition. From it we learned that all exhibitors are to be on the ground by April 1, 1893, and that each State, for its honey-exhibit, would be allowed only 100 square feet. Colorado bee-keepers alone had applied for 1000 square feet. This was a poser. In the discussion which followed, it was urged that we ask for more space, as 100 square feet per State would be insufficient. But over against this it was urged that all the States would not attempt to make an exhibit of honey, and their apportionment of space would go to help make up the allotment of the States that did wish to exhibit. During the course of the discussion, Capt. Hetherington, who has had much experience, told us, in a very interesting way, of the honey-exhibit which he prepared for the Centennial in 1876—an exhibit which attracted so general attention at the time. He gave us many interesting suggestions—suggestions which the committee will probably make use of. A committee of three, consisting of Dr. Mason, P. H. Elwood, and Hon. J. M. Hambaugh, with Dr. Mason as chairman, was appointed to confer with the proper authorities of the exposition at Chicago, with reference to an apiarian exhibit at the World's Fair. As heretofore, the convention was about to recommend Dr. A. B. Mason as the right man to take charge of the honey-exhibit. Some one, I believe it was Mr. Dadant, said it was an unnecessary step, as the commissioners would follow their own sweet will, no matter what recommendation we might make. In the general discussion it was regarded that this was the golden opportunity now before the bee-keepers of the United States to make a grand exhibit—one that would be educational, and of much importance to the industry. It was not an opportunity that we could afford to let slip by, and it was hoped that the committee appointed would give the matter the attention it deserved.

SPRAYING FRUIT-TREES AND POISONING BEES.

At one of the sessions Prof. Somebody (I have lost the memorandum of his name), of the Department of Entomology of the State of New York, was introduced to the convention. The professor desired to ascertain to what extent bee-keepers had experienced trouble from the poisoning of their bees as the result of arsenical sprayings of trees during fruit-bloom. He had always urged, in his advice to fruit-growers, to spray the trees just before and just after blossoming, but he said it would be a great advantage if they could, without detriment to the bee-keeper's interests, spray *during* fruit-bloom. It was his opinion that the arsenical poisons were so weak that they would do no harm to the bees, even if the blossoms were sprayed during full bloom. As this was a convention of representative bee-keepers from all over the land, he desired expert testimony, and sat down.

Very promptly C. P. Dadant, supported by Hon. J. M. Hambaugh, told of an instance of a neighbor's bees that had been poisoned by the thousands—in fact, the apiary was almost exterminated by the spraying of fruit-trees during the time of blossoming. The professor seemed hardly satisfied with this and wished better proof. He desired to know whether a chemist had made an analysis of the contents of the honey-sacs. The gentlemen replied that the chemist had not done so, as they regarded the proof sufficient. The professor would not regard this as a *scientific* proof. The bees, he thought, might have died from other causes. But Dadant and Hambaugh insisted that it was significant that the bees died just at the time of spraying; and when the spraying had stopped, the dying-off of the bees stopped also. Still the professor was a doubting Thomas. The Hon. J. M. Hambaugh said he introduced the bill in his own State, Illinois, for forbidding the spraying of fruit-trees during the time blossoms were on, and the bill had nearly passed. He was urged to draw up this bill by a pressure of bee-keepers from all over that State, who had complained of poisoning from the sprayings. About this time expert testimony began to pour in from all parts of the convention. J. E. Crane, of Vermont, and somebody else, testified that they had actually seen bees dead and dying under trees that had been sprayed with arsenical poisons; and the doses for the spraying were no stronger than was recommended. I was myself surprised at the number who had seen bees poisoned from the spraying of fruit. If a multitude of testimonies and a strong array of circumstantial evidence mean any thing, the professor must undoubtedly have been convinced, even barring the chemical analysis of the bees' stomachs. At any rate, he seemed satisfied, and said he would continue to advise as he had done heretofore, to spray before and after blossoming. A vote of thanks was then tendered him for his kind consideration in our behalf.

One of the valuable services that this convention has rendered is to have the bad results of spraying during fruit-bloom. It also showed that the interests of the fruit-grower and honey-raiser are one; that all the results that can be desired can be accomplished after the petals have fallen off from the miniature fruit. Prof. Cook's able paper, read before the Association for the advancement of Agricultural Science, at Washington, and published on page 732, 1891, was introduced in evidence.

TWO SIZES OF SECTIONS FOR A STANDARD.

An essay was read from Dr. C. C. Miller, on the subject as above. The doctor discussed the desirability and feasibility of having two sizes as standard. They necessarily cost the supply-dealer more, and therefore indirectly the bee-keeper. It would be desirable, he thought, to have only one standard; but in the present condition of things, that seemed impossible. He rather objected to 1⅞ sections for one of the standards, because they hold less than a pound, and because the consumer buys it for an ostensible pound package, when it was not. He did not wish to be a party in any such business. In connection with the essay were read two letters, one from W. T. Falconer, and the other from the G. B. Lewis Manufacturing Co. Both held the ground that it was desirable to have a standard if it could be adopted. The 1⅞x4¼x4¼ comes as near as any thing to being a standard; but besides these there are dozens of other sizes which they are obliged to keep in stock.

A number of commission men were present, and objected to the point made by the doctor on small-size or under-weight sections. The "under-weights" were accepted readily. Consumers would ask, "How much is honey a pound?" The reply would be, for instance, "Eighteen cents." The consumer would call for a section. When the change was made out he would be charged only 16 cents; but let there be an over-weight section, and there would be complaint. Commission men seemed to prefer larger and thinner combs, of a trifle under a pound, and this is one reason why perhaps a 4½x4½ section, seven to the foot, has been coming into prominence. H. R. Wright showed his under-weight tall section, a trifle taller than wide. The display was a little better, he said, and consumers readily took it.

GRADING OF HONEY.

The discussion finally turned to the all-important question, *grading honey*. The system adopted by the Northwestern at Chicago was discussed pretty thoroughly. The first grade at that convention was "superfine." Grade No. 2 also calls for very fine honey; but the mere fact of its being classed as No. 2 puts a stigma upon it that it does not deserve. The Albany convention, as well as commission men readily saw the need of a change here. A large committee was appointed, comprising a number of prominent bee-keepers and commission men present, to draw up a new schedule of grading, and report to the convention. The report as adopted is as follows:

REPORT OF COMMITTEE ON GRADING COMB HONEY.

Honey shall be graded in two grades, the first to be known in the trade as "fancy," or "fancy white," and to be marked "A." It shall be composed of well-filled sections of light-colored honies. One face of each section shall be perfect in appearance, fully sealed, except the line of cells touching the wood. The other side of the section shall either be perfect in color and sealing, or nearly so.

The second grade shall be known in the trade as fair to good, white, and be marked "C," and shall be packed to meet the requirements of those desiring a good honey, but who care little for outside appearance. It shall be composed of honey thrown out of the first grade, irregular and travel-stained combs, sections not perfectly filled, but yet having but little unsealed honey.

White honey, third grade, mixed with inferior honey, including buckwheat and fall flowers, shall be graded by itself, and marked "M." We desire that combs so badly stained as to have the appearance of saffron be thrown into this grade.

Buckwheat honey shall be packed by itself and shall be marked "B."

Those bee-keepers sending to market boxes known as "pieces" shall put upon them a private mark of their own. This should also apply to honey-dew and any other kind not falling in regular grades.

I was out when the report was read, and now that it is sent in—well, it is not quite to my notion. W. Z. Hutchinson expresses himself in a private letter as being not quite satisfied. He and I were both in hopes the Chicago grading might be taken as the basis, and the *name* of the grades changed. But Albany aud Chicago are two very different localities, and it would be hard for them to agree upon one system of grading.

RENDERING WAX.

A paper was read by R. F. Holtermann, on some facts not generally known about rendering beeswax. By experiments which he had made, he was perfectly satisfied that wax is often overheated, therefore injuring it to a great extent for foundation.

Dadant took the ground that it was not overheating, but *steam*, that did the mischief; that it was the incorporation of water into the wax that made the trouble. Mr. Corneil was not of the opinion that overheating would hurt wax. In fact, in some experiments in melting wax in a double-walled solar wax-extractor, he had maintained a temperature, on a number of successive days, of 220 degrees. It might have injured it, but it was his opinion that it did not. Mr. Dadant then showed us samples of foundation, one in which too much steam had entered into the wax, and one in which it had not. The former had a milky color, and the latter was of a transparent beautiful amber. The former he made transparent by subjecting it to the heat of a gas-jet.

NEXT PLACE OF MEETING.

When we came to talk about the next place of meeting, a number of points were considered. We were very much undecided where to go until Captain Hetherington urged the claims of Washington. In a very neat and felicitous speech he made, it was evident that he had carried the day; and everybody began to talk and urge Washington. When it came to a vote by ballot, the decision was almost unanimous in favor of the city on the Potomac.

Washington is the Mecca, it was urged, of all true Americans; and every bee-keeper is a loyal man, and desires some day to visit the national capital. Some one else said that it would be a grand place to take the women-folks and children, and that what might be lacking in local attendance for the next meeting would be more than made up by those who had come to see the capital as well as to attend the convention; that is, a double interest would attract many, whereas the single interest of the bee-convention might not.

The election of officers resulted as follows: President, Eugene Secor, of Iowa; Vice-president, Captain J. E. Hetherington, of New York; Secretary, W. Z. Hutchinson, of Michigan; Treasurer, E. R. Root, of Ohio.

ALBANY CONVENTION SIDELIGHTS.

IN BETWEEN SESSIONS.

To me, the best part of any convention is the intermissions—the hand-shakings and the little chats with this one and that one. During the recesses there would be a lot of bee-keepers who would rush to the room where bee-keeping implements were exhibited. There were lots of hives and fixin's there. A variety of double-walled hives were shown, and other implements over which one bee-keeper would be very enthusiastic, and yet another one would not have them as a gift.

Several times some small bee-keeper would explain some new fixing of his own. Why, he had experienced lots of comfort with it during the past season, and wished his bee-keeping friends to know it. Some of the veterans—those who number their colonies by the several hundreds, would look on and smile, and remark, aside, "Good enough for *him*, but *we* can not tolerate such a roundabout way of doing things."

I had long wanted to see the extractor of W. L. Coggshall, that West Groton bee-keeper who produces so many tons of extracted honey, and there it was, among the other exhibits. He wouldn't have any of the commercial machines, as they are not made to suit him. He uses a Langstroth frame, and wants it to hang in the extractor just as it does in the hive. A very little talk with him will convince you that he has some very good reasons for such a preference. Of course, it makes the extractor large and ungainly. Why, it is as large as the Stanley automatic, and the combs are not reversible either. It is a four-frame machine; and instead of combs being put in the *four* sides of the basket, they are put in in pairs, with a strip of tin between. Of course, the two inside combs are nearer the center-shaft; but he says that makes no practical difference. The idea is not so crude as it might be.

Some one jokingly asked Mr. C. why he did not make his extractor large enough to take in a whole upper story, one on each side of the basket. A number of prominent bee-men were present; and as if it were a huge joke, they began to outline the plan. "Why," said one, "all you need is some sort of an uncapping-machine that will run between the combs just as they are in the hive. Then slip in a sheet of tin between each pair of combs. Put two supers of this kind in the extractor, and let it whirl. The honey will fly out and strike the sheets of tin, and drain out below; then reverse the supers the other side out, and start the machine, and, presto! there would be two whole supers, each containing ten Langstroth frames, with the honey all extracted, without so much as a frame being removed." I began to think of the Heddon supers, and the thought came to me that there were *possibilities* in the line of uncapping combs without removing a frame, especially with fixed frames. There was also a possibility of having sheets of tin so fastened that they would be held at equal distances; and these sheets or rack of spaced sheets could be dropped between the spaces between the combs. We all had a big laugh over the big invention, and it turned somewhat at friend Coggshall's expense. "See here," I said, "gentlemen, there may be a bigger thing in this than you think, taken in connection with the shallow extracting supers with fixed frames." Nobody can patent this, because reliable witnesses will testify that the invention was born at Albany, even if it does seem now like a big joke. Understand, I do not say it is practicable, but some day *something* might come of it.

I had a very pleasant visit with Captain Hetherington. The impression has, perhaps, gone abroad that he is a recluse, and a man who keeps all the good things to himself. Nothing could be further from the truth. He used to be prominent at conventions, and his name appeared frequently in bee-journals; but it entailed such an immense amount of correspondence, and brought so many visitors to his place, that he found he was obliged to withdraw himself from the public. As he was neither an editor nor supply-dealer, such an amount of correspondence, and so many visitors, not only became a great burden, but could be of no possible service to him; and he was too polite not to answer his correspondents, and too cordial not to entertain, and so the only alternative was to cut off the original source that brought it about. Now that we have so many excellent bee-books and bee-papers, I sincerely hope the day is past when it was necessary to go and interview and take the time of some of these extensive bee-keepers, at least uninvited, and during the busy rush of the honey-season.

I had delightful chats with J. H. Nellis, of the former *Bee-keepers' Exchange*, and with Julius Hoffman, the man who invented the Hoffman frame. I showed him our modified Hoffman frame for the L. hive, and explained to him how it was we were obliged to use a straight top-bar. After looking it all over he readily acquiesced with our modification, and said that it was better for the L. size. At one of the intermissions Mr. Hoffman favored us with some music on the piano. It was easy to see that it was a master's hand that touched the keys, for indeed he is one of the most accomplished musicians in the country. I was sorry afterward that I did not think in time to suggest the propriety of his favoring the whole convention with music. Perhaps he can at some future time.

Some of those large honey-producers of York State—those who produce their honey by the ton and carload, are a little sensitive about having their crops made public. One reason is, it creates a wrong impression, and leads outside bee-keepers to think that they are making a mint of money, and quite frequently it is the cause of others coming into their locality, and crowding upon their fields. When these large crops are published, small one-horse bee-keepers are apt to forget the enormous expense and labor required to harvest the crop; and when they come in, with little or no knowledge of the locality, they are sure to make a failure for themselves, and to seriously interfere with the average per colony of those bee-keepers who were first in the field.

While sitting at the dinner-table at the hotel, Mr. McKnight, of Owen Sound, Canada, gave us a very interesting account of the Colonial Exhibition in London, and how the Canadian honey was gathered up, how it was shipped, how it was displayed, and finally sold. The information he gave us was very valuable, and we hope he will some day give us the benefit of the information through an article or two, in order that the bee-keepers of this country who are about to prepare a mammoth exhibit of honey for the World's Fair may profit by his experience and suggestions. We will not attempt to reproduce Mr. McKnight's account here, as we fear we might not get all the facts straight.

W. Z. HUTCHINSON'S VISIT TO MEDINA.

WHAT HE THINKS OF THE HOME OF THE HONEY-BEES.

We were going to "write up" W. Z.'s visit here; but the following, taken from the December *Review*, is so much better than any thing we could give, we take pleasure in reproducing it instead.

This is written sitting at Ernest's desk at the "Home of the Honey-bees" in Medina, Ohio. Around me is the click of type-setting and type-writers, while from below comes the whirring sound of machinery in motion. For a long time I have desired to visit this establishment. I have often tried to imagine how I should feel when walking over from the station and looking up at that stone bee-hive over the inscription, "In God we Trust." Yesterday morning I experienced that sensation, and found it fully as pleasurable as I had expected it would be.

The first man to discover and welcome me was W. P. Root, the proof-reader and stenographer. We had often corresponded in shorthand. In fact, I once wrote an article on windmills in shorthand for GLEANINGS, and W. P. put it in type directly from the shorthand manuscript. He grasped my hand and said: "You are the man I have long been wanting to see," and led the way up to the office.

I had heard that nearly every visitor to the Root establishment had been surprised at its magnitude, consequently I had made up my mind that *I* was not going to be surprised, but I *was*. I was not surprised at the *outside* of the buildings—the illustrations in GLEANINGS have shown these quite fairly but it seemed to me as though they were about three times as large inside as they were outside. Medina is not a large city—about 2000 inhabitants—and almost from necessity many trades must be represented at this one institution. The sending-away for repairs, and delays from getting out of many things, would be too expensive. There are many things that Ernest said he would gladly drop, and rid himself of so much worry, but it seemed well-nigh impossible to do so. Ernest showed me over the establishment, then by a sort of tacit agreement he went about his work and allowed me to roam about at my own sweet will. You see, we were to go on together to Albany, and we both knew that we would have plenty of opportunity for visiting while on the road. The beauty of my visit was that everybody seemed to know me *at once*. This may be accounted for by the fact that every employe receives a copy of GLEANINGS. In five minutes the pressman and I were deep in the discussion of hard and soft "packing" for cylinder presses, of the kind of paper needed for the various kinds of work, the best inks, etc. Then he fished out his printers' magazines, and we looked them over. This is a fair sample of how I put in my time.

I don't remember ever going through so large an establishment where every thing was *quite* so neat and clean. Ernest remarked, in a joking way, in a recent issue of GLEANINGS, that if folks would only let them *know* when they were coming, they would have a "clarin' up" spell before their arrival. Of course, my visit was known in advance; but somehow I feel just as though there was no "clarin' up" spell on that account. Most of the rooms were just as clean as a dwelling-house; yes, far more so than some I have seen. Then every thing was so handy and convenient—so systematized! Each had a particular duty to perform, and the manner in which these duties were performed pleased me exceedingly. It was with a sort of pride in the work.

Yes, I went out with Ernest and looked at the bees. The apiary is very pleasantly located. The view lately given in GLEANINGS of the Shane apiary, after it had been brought home, is the only one that does justice to the beauty of the yard. This view, however, does not show the whole yard. The evergreens on the north and west sides stand in as neat and symmetrical rows as I ever saw. As an ornament and windbreak they are a success. Ernest is experimenting quite a little now as to the use or non-use of absorbents. It looks now as though absorbents might be an actual detriment. Let the bees seal the covers down tightly, so no moisture will escape, then use protection of some kind outside the hives, where the moisture can not reach it. The management of the apiary and of GLEANINGS is left largely to Ernest, while the business management is in the hands of Mr. Calvert. Gardening is Mr. A. I. Root's hobby now; the "boys," as A. I. calls them, being allowed a wide latitude in their departments. They are more given to the "trying of new things" than is the case with A. I., although no momentous step is taken without his advice or consent.

One of the new things that are about to be brought out is a reversible honey-extractor. It is not automatic, but the baskets can be reversed so quickly that but little time is lost, while much is gained in the way of making the can smaller, and in lessening the expense.

Yes, I saw that bright youngster of eight months, Leland Ives, who is now able to sit up in a high-chair and make a noise in the world. I did feel a little guilty for .coming away without calling on his new cousin, Howard Root Calvert; but he is so young that I feared he wouldn't take much notice of me.

As some of you may know, Ernest's hobby, or *one* of his hobbies, is that of photography; and when I tell you that he brought home his fourth or *fifth* camera on the day of my arrival, it is not to be wondered that his wife said, "What! *another* one?" using the same tone and expression that my wife sometimes uses when I bring home a new font of display type.

When I woke up in the night it took me some little time to decide that it was A. I.'s windmill that was going "squeak, squeak, s-q-u-e-a-k." "Yes," I thought to myself, "its master's hand is away in the West. If it were here that windmill would be—greased."

But, enough of incidents. I could fill the *Review* with them, but there are so many things that must go in this issue that I must close by saying, "Success to the Home of the Honey-bees and those who work therein."

[Brother Hutchinson in a few words has described very vividly the inside workings of the Home of the Honey-bees. If we do indeed deserve all the kind things he has said of us, we are pleased. We really were not aware that we kept things neat, although we have for some time back taken considerable pride in our system.

We had a delightful visit, and freely talked over all the kinks of the trade. No secrets or pointers were held back for fear that the "other fellow" might get the advantage. The feeling was that we were all of one family, and need not be jealous of each other's prosperity or new hits.

We enjoyed Mr. Hutchinson's visit because he is somewhat of a hobbyist himself. Yes, he guessed right. It was the fifth camera that we brought in that day. Mrs. R. does not object to the camera craze, only the wonder is, what we are going to do with so many instruments. Well, to tell the truth, by the death of a relative we came in possession of quite a lot of photographic apparatus. Two of the cameras are very fine ones, and we advertise them in this number for about half their original cost. Five cameras! Even *we* have no use for so many. Bro. H. is peculiarly graphic when he speaks of the windmill "squeak." We presume the senior editor will see this, and wonder whether it is squeaking now. After W. Z. H. spoke of it we forthwith sent a man up to oil it. It does not squeak now.

We not only enjoyed our visit together, but we traveled together to Albany, occupied the same sleeper and the same berth; and, as if that were not enough, when we got to the hotel we registered together for the same room; and, furthermore, we were frequently seen walking up and down the streets together. It was a sort of conundrum to many at the bee-convention how two bee-editors could with conflicting interests agree so well together. May this feeling long continue; and we hope the day of old jealousies between bee-editors is past and gone.]

GRADING HONEY, AND ITS IMPORTANCE.

HOW CHEAP GRANULATED SUGAR IS SUPPLANTING HONEY IN BAKERIES.

We perused with interest the article of Miss Wilson on page 960, and would respond thereto at length, but we desire first to learn the action of the Albany convention. However, one fact we will state; and that is, that the commencement at the Northwestern convention, relative to grading honey, was a step in the right direction; and now if a bee-man writes that he has a first grade of buckwheat honey we know that it is such. If he writes he has a third grade of basswood honey, we can also answer him intelligently as to what it would sell for in this market. Color and flavor should not be considered in grading, by any means.

A point that has been much argued, namely, "Does the low price of sugar affect the sale of extracted honey?" we desire to answer by stating that a manufacturing firm to whom in past seasons we have sold carloads of honey in one order writes that, after having experimented with granulated sugar, they find it far superior to honey, since the article manufactured, with honey as an ingredient, will sour in time, while with granulated sugar it will not; and since it is cheaper in future they will not purchase any honey. S. T. FISH & Co.

Chicago, Ill., Dec. 19.

[This is certainly not welcome news, if it is becoming general among bakers. We should like further information from others on this point, from those who are in position to know. By all means let us face the lion, if there is one, that we may be prepared to fight it.]

CUBA A BEE-KEEPER'S PARADISE.

AN INTERESTING LETTER FROM FRED CRAYCRAFT, OF JUVENILE GLEANINGS.

Dear Sir:—I am in Cuba. You will ask, "Who are *you*?" I will refer you to JUVENILE GLEANINGS of July, 1882, page 45. There you will see that you give a ten-year-old bee-boy credit for being the cause of your starting the "JUVENILE." You will see, on page 61, my name appears in connection with our friend E. E. Hasty as one of the boys who weighed the bees and their loads. I am still with the bees, and love them dearly. I came here from Astor Park, Fla., in October; and through the kindness of Mr. Osborn I secured the situation which I now occupy. Before coming to my new home I spent a few days with Mr. Osburn at Punta Brava in looking over his large apiary and admiring his mammoth extractor; and I also had the great pleasure of seeing it run. It is a fine piece of workmanship, and runs as smoothly as a sewing-machine. The apiary which I have charge of, called the "Two Sisters," owned by Mr. Manuel Gomez, Portuguese consul-general at Havana, is only a small one now, it being the desire of the proprietor to have the bees increased to an apiary of 500 or 600 colonies, and then put in an extractor run by steam. Mr. Gomez has contemplated having an apiary here for some time, and has built sheds to put the bees under, and also a large honey-house and workshop, all furnished with every thing needed for taking care of a large apiary; but he has not had time to give it his personal attention, he having one of the largest importing and commission houses in Havana.

The kind of hive in use here is different from the Simplicity. It is a two-story hive, the second story being used to extract from. The size of each is 13 x 16, and 10½ inches deep, each story containing nine frames 10x15, set crosswise to the entrance. When I came here the bees were not getting much honey, owing to rain and stormy weather; but we are having better weather now, and the bees are doing well. The principal honey source, the campanola, is just beginning to bloom, but there are always plenty of flowers here. The bees are working now on the royal palm-tree. It is similar to the cabbage-palmetto of Florida, only, instead of blooming two or three weeks, like the palmetto, it blooms all the year. As soon as one stem of blossoms is done, another takes its place; and a small apiary could store surplus honey almost all the year from that alone.

This is a beautiful country. Instead of being low and swampy, as many people suppose, it is high and rolling, with many hills that might almost be dignified by the name of mountains. The place where I am located is eighteen miles east of Havana by one of the finest roads on the island. The farm consists of about 800 acres, all in fruits, sugar-cane, and pasture land. There are a great many kinds of fruit here, among which I might mention oranges, lemons, limes, grape-fruit, bananas, plantains, mamayas, cocoanuts, mangoes, coffee, and many others that are strange to the eyes of an American.

In describing some of the many things to be seen here one can not fail to mention the roads. This is a limestone country, and the rocks are put to a good use in paving the roads. The road leading from Havana to San José, two miles from here and twenty from Havana, is as smooth as a race-track, and lined on each side with palm-trees. This is certainly the bee-keeper's paradise, and will one day lead the world in the production of honey.

FRED L. CRAYCRAFT.

Havana, Cuba, Nov. 17.

[We are glad to hear from you, friend Craycraft. We were about to say "friend *Freddie;*" but after all these years you must have grown to the stature of a man. We remember very distinctly the part you took in the early JUVENILE GLEANINGS, especially when you weighed the bee-loads *a la* Hasty. We trust the same spirit of investigation will follow you in your new quarters, and that you will give us further of your impressions in that land of flowers.]

LADIES' CONVERSAZIONE.

WAX BOUQUET OF AUTUMN LEAVES.

SOMETHING TO DO IN WINTER.

No prettier ornament for the parlor can be devised than wax leaves and flowers; and as winter is the time when bee-keeping ladies or their daughters have leisure for fancy-work, if ever, I will tell how to make a bouquet of autumn leaves; and next month, if desired, I will tell how to make a wreath of wax flowers, or a white cross in wax.

Leaves are made by pressing thin sheets of beeswax upon a leaf-mold until they are veined and cut off. First wet the mold. Cover a wire for a stem, with strips of wax pressed around smoothly, or use one covered with thread (such as are used in ladies' hats). Lay the stem on the whole length of the leaf; then lay on another sheet of wax, and press on tightly (but do not press on the wire) till cut off smooth all around.

For autumn leaves, use thin sheets of yellow beeswax—just such as are used to make foundation for sections; the thinner the better, so that there are no holes in the wax. Wet the mold; press on the yellow wax, and cut off; then, while the leaf is still on the mold, rub on to it some red, green, or brown paint, as fancy dictates. Do not rub on too much, as the lining will not stick. Now lay on a stem covered with wax, and press on the mold again another bit of yellow wax. This last forms the lining to the leaf. Now press on around the edges until they are cut off smooth. The room should be warm, so that the wax will work easily and not break —just comfortably warm is sufficient.

The leaves may be made entirely of beeswax which is more pliable than what we buy, or the upper surface may be made of sheeted wax prepared for the purpose, and sold in packages generally kept by druggists, or it may be ordered by them, both green and variegated.

After the upper surface of boughten wax is made, lay on the wire stem that has been covered with wax, and for a lining use sheeted beeswax. If the upper surface is green, or nearly so, then the lining should be of green wax. But if the upper surface is of yellow wax, to imitate an autumn leaf the lining should be of yellow wax also; and as the wax we buy is so brittle I always prefer to use a lining to the leaves of beeswax.

There should be a variety of leaves made, to look well in a bouquet, placing the smaller ones at the top, and grading down to the largest for the bottom leaves. Begin at the top to nail them on to a prepared board lined with white paper. Nail each leaf on separately, then the next leaf so as to cover the stem of the one above it, and so on until all the stems are covered and the leaves nailed on. Now finish by making a few large green stems, and press on underneath the leaves, causing the cluster of leaves to look as if one could hold the bouquet in his hand by the stems. Around the stem arrange a wax ribbon so cut and stuck on as to imitate a ribbon tied in a bow-knot. Cut each bow separately, and stick on; then the short strings below the bow, and stick each one on separately; then a short strip of the wax stuck on in the center, to form the center knot.

Four or five leaf-molds will be needed to give the best effect, although a very pretty bouquet may be made on but one or two molds.

For sheeters to make up sheets of green wax and small quantities of yellow wax, I form them of plaster of Paris by stirring up a pint bowl half full of it and pouring it into a large breakfast-plate. Before this hardens, put in something iron for a handle—three or four large nails stuck into a potato, with the heads all even; then hold the heads down into the plaster until it hardens, just escaping the bottom of the plate. In 24 hours heat the plate and then take it out; soak it 10 minutes in lukewarm water, then dip it into the melted wax (previously colored with a little thin bag of green paint, Paris green, pressed out with an iron spoon). Do not use too much green paint, as it makes the wax brittle. Dip again into the water, causing the wax to peel off the sheeter just as it does in sheeting wax to be pressed into foundation, except that this sheeter makes a round sheet. Yellow wax may be sheeted the same way, but not colored. If the wax is too hot it will be full of bubbles, which should be skimmed off, as they will make the sheets full of holes; and if too cold, the sheets will be too thick. Do not try to make flowers out of such wax, as it is too thick; but it is just right for leaves.

After the leaves are formed into a bouquet, tack on the side pieces, which should be about an inch and a half or two inches deep, forming a box to preserve the leaves from being broken. Over this may be tacked a pane of glass; but a picture-frame looks much better.

Use some green leaves in the bouquet, and rub on to the yellow. Use quite freely of red, brown, or green paints, so that the bouquet may not have too yellow an appearance.

The leaves should lie flat, yet stand out distinct from each other, nearly touching the glass.

Wire stiff enough to hold the leaves in place should be used. Do not use long wires, but tack each leaf on close to the leaf, with a carpet-tack. The board to form the back should not be too thin—⅜ of an inch is about right. Use a small hammer, and a nail-set to drive the tacks with, and cover the heads with other leaves or green moss. Line the box with white printing-paper.

A few dead and dried bees stuck on are pretty; but as honey-bees dry up so small, I prefer queens or drones, or butterflies. Stick a small black-headed pin through them before they are fully dried, and stick it through a leaf. The yellow-headed bumble-bees also look natural on wax leaves or flowers.

POTATO-BALL BREAD.

This is the bread for swarming-time. Why? Because it never sours within any reasonable length of time. If made up at night, and mixed the first thing in the morning, it will be ready to bake before the bees begin to swarm in the forenoon. Or, the yeast may be set in the morning, and attended to through the day just when there is nothing else pressing, only so that it gets light; but it does not sour by being left some time after being light. It may smell somewhat sour; but by being mixed it takes the sourness all out of it, although it may have been as light as a puffball, and is always good if not allowed to get too light before being baked.

HOW TO MAKE IT.

Take two or more fresh yeast-cakes and soak them soft. Stir into a pint of mashed potatoes the yeast, one teaspoonful of salt, one teacup of sugar (half a cup of sugar will do after the yeast has been started). Use no water nor flour. Set this away for four days in summer, or one week in winter.

To make bread, take one quart of finely mashed potatoes, cool enough not to scald the yeast. Stir the potato-ball in thoroughly, and save out two-thirds of a pint for bread next time. Now stir into the remainder about one-fourth teacup of water (use no flour), and let it stand over night or until light; then add one quart of water, and flour enough to make a sponge. Beat well and let it stand until light again, or until you are ready to mix (it never needs soda to sweeten it); then make out into loaves. Oil the top of the loaves; when light, bake in small loaves, as such do not require being baked so long as larger ones, consequently the crust is not so hard. If two loaves are made in one pan they may be broken apart to see when done, and yet not injure the bread. If one has any trouble to guess when the bread is done (as bread is often injured by being baked too long), handle gently when setting it in the oven, as jarring and shaking will not allow of its being so light.

If graham bread is wanted, use half the potato sponge for graham sponge, and the other half for white bread. When light, mix it stiff with white flour, and treat the same as for white bread, only be careful not to get it quite as stiff as for white bread. If too stiff, work in more water. Both the white and brown bread should be made up so stiff they do not require more flour when worked out into loaves.

Bake it nicely, neither too fast nor too slow, and you will have good bread every time with even fair flour. Much bread that otherwise would be good is spoiled in baking.

The fire to bake the bread should be started immediately after the bread is mixed into loaves. If there is fire in the stove already, and the oven-doors closed, and the damper to heat the oven adjusted, all well; but if there is no fire, then it should be started before the bread is made out into loaves. Many persons wait until the bread is ready to go into the oven before any attempt to heat the oven is made, which carelessness allows the bread to run over, or get too light, and then the fire is hurried up so fast that the bread is burned. The heat of the oven bakes much the nicest after being heated quite hot, and is beginning to cool. Often the last loaf baked is baked the best.

SMALL POTATOES.

These may thus be used up for bread, as the large ones are nicer for table use. I put them into a wire basket and set them in a kettle with plenty of boiling water. When done, lift out the basket and pour a few into the potato-masher while hot. Press the lever, and the potato is pressed through the perforated metal. The skins are retained in the masher. This leaves no lumps in the bread, uses up the small potatoes, and saves time and potatoes in paring them.

By the way, this same potato-masher makes potatoes very nice for table use. Boil nice large ones, and, just before sending to the table, run them through this masher, sprinkling in a little salt, or salt in boiling. As fast as mashed, pour out into a dish, and cover them. Pour over them some hot rich cream, in which a little butter has been beaten up, and you have a most delicious plate of potatoes as light as a puffball. Do not stir them after being mashed or pressed through the masher, as it will take the lightness out of them.

I mention the above way of making bread, because, in swarming time, it sometimes seems very difficult to get bread made when the cook has the swarms to look after. Two summers I have had help who could not make bread. Though I had three girls one summer, none of them could make bread, and were inexperienced in bee-work also. The bees swarmed incessantly that summer, and gathered much honey. Mr. Axtell took sick about that time, and I had both yards to look after. With the help of the girls, I could only get time to mix up biscuit dough and bake for bread in the morning before bee-work began.

Another summer I undertook to mix light bread outdoors where I could watch the yeast when light, as I had set it in the sun to rise, as the girl could not make bread, and was inexperienced in bee-work also. I had just got my hands into the dough to mix the bread, when out came a swarm. I rubbed off the dough and ran for the queen, and took care of the swarm. By this time the dough had dried pretty well upon my hand, which took me a long time to wash. I had just got into the dough again, when out came another swarm. I could not take time to get the dough off my hands very well, for I was afraid I should lose the queen; so I found from experience that bread - making and queen - catching did not work well together.

VENTILATION THROUGH THE HIVE.

In your article on page 889, in the Nov. 15th issue of GLEANINGS, you say so many bees died in hives that were not protected by outside cases, I wondered, as I read, whether there would have been the same loss if there had been passages through the center of the hive, *a la* Heddon or Mr. B. Taylor, or holes punched through the tops of the combs, as we used to do a good many years ago for winter passages. I have seen the same things happen to colonies we were preparing for winter, and had set some of the brood-combs outside of the division-boards for the bees to carry the honey in. One cool night had caught them, and they drew up into a cluster, leaving small clusters on the combs that were outside the division-board. These bees seemed dead when found; but if the bees were let alone, and a warm spell was not too long in coming, I think they warmed up and crawled back into the hive again, just as I have seen bees do when I have fed them out of doors more syrup than they could carry in before it became too cool in the evening. They would be seen sitting around upon the feeder, as if dead; but if, next day, the warm sun shone upon them they would all or nearly all revive and fly black to their hive. But I have an idea that such exposure shortens their lives.

Evangelist J. E. Wolf, who is editor of *John Three-Sixteen*, says, in the November number, "Mr. Harry Lathrop, of Browtown, Wis., sent us about 40 lbs. of the finest honey it has been our privilege to test for a long time." I suppose it is known that Bro. Wolf is, with other helpers, carrying on an Indian orphanage and training-school in Vinita, Indian Territory. The funds that sustain them are given in answer to prayer, and by friends of the mission. Just now the little orphans, aged from 8 to 16 years, are in need of shoes and stockings, as winter is coming on. There are a thousand other ways in which help would be appreciated just now. Will not many more brothers and sisters remember Bro. Wolf and his large family of orphan children, with substantial aid now as the holidays draw near? Remember the words of the Lord Jesus, "It is more blessed to give than to receive." I will send you two pictures of the older orphan children. MRS. L. C. AXTELL.

Roseville, Ill., Dec. 19.

POULTRY-RAISING.

HOW NOT TO HAVE FAILURES; BY A BEE-KEEPER.

Ever since reading Mrs. Smith's letter in GLEANINGS about raising poultry, I have felt like telling a little of my experience. While what I have to tell may be nothing exactly new, still there may be something that may be a help to her.

We generally have pretty good success with our poultry, and raise a good many chickens, ducks, turkeys, geese, and guineas. The first thing to be looked out for is the parent birds, which should be two years old, to have the best success. If they are younger, the offspring are apt to be weak and delicate.

The next thing is food. Perhaps some people can feed all other poultry the same as they would little chickens, and have good luck with them, but I can't; for while little chickens will thrive and do well if fed plenty of corn meal, no other kind of poultry will, for me at least. When they are small, the best food for them is bread and milk, or cheese made from thick sour milk, and seasoned with a little pepper and salt, just the same as though it were to be eaten by boys and girls in place of baby turkeys and geese. As they grow older, scraps from the table, and almost any thing except raw corn meal, will do for them, and they will pick a great part of their living if allowed to run.

The next, and perhaps a still more important point, is to keep them *dry* and *warm*. It will not do to provide them with good coops and think they will take care of themselves, no matter whether they have hen-mothers or mothers of their own kind. A run through the wet grass in the early morning, or a cold drizzling rain, will put an effectual damper on the enthusiasm of almost any poultry man, or woman either. Although water-fowls, little goslings and ducklings become chilled, and die, just the same as little turkeys, if they get wet, even when they are nearly half grown; so we make a yard around their coops. A board one foot wide is high enough to keep them in in the morning till the grass is dry, or on days when it is rainy.

Last spring, about the middle of May we had over fifty little turkeys, and some ducklings and goslings, when there came a cold rainy spell that lasted for three or four days. The ground, and every thing outside, was thoroughly wet and chilled. I put the little fellows in some large boxes, and brought them into the house and kept them by the fire (the mothers were left outside), till the storm was over. A few of them died; but over twenty of the turkeys went to market for Thanksgiving, and there are some more to go for Christmas. They brought a good price, as they were early, and so were large and well grown.

MRS. A. L. HALLENBECK.

Millard, Neb., Dec., 1891.

A NUT FOR DR. MILLER TO CRACK.

Please ask Dr. C. C. Miller what he means by the expression, "Pretty good for Missouri." Did he not know that he would stir up a hornet's nest? Why should not Missouri, with an area nearly equal to all of New England, be up with most of 'em? Where is the State that has greater natural advantages in honey flora, climate, and all that goes toward making successful bee-keepers? And then to have one of the big doctors say, "Pretty good for Missouri," as though we were some out-of-the-way corner, when in reality we are the very heart of this great United States! Now let him rise and explain. MRS. J. M. NULL.

Miami, Mo.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

THE NEW FRAME; A REVERSIBLE HOFFMAN.

I am glad that bee-men are coming to reason as to frames being spaced. What an idea, to do a thing at guess as one has to with a loose frame!—no room in one place and too much in another. Again, what a sad blunder it was to use a ⅜ top-bar—sad unless we reversed often.

The cuts of your frame in last GLEANINGS show some very excellent frames. I shouldn't like the narrow bottom-bar, for it is a loafing-place for bees. I mean to use all the room to good advantage; and to fill the frame, I will reverse. I have a reversible wire of my own, and I'm now working on a hive to reverse, and use the regular Hoffman frame. It is a wonder to me how a frame closed the whole length, and close to the hive-ends, can please one. I bought one such this fall, and it was impossible to get a frame out—perfectly glued everywhere. I shall transfer them in the spring.

I can hardly see the need of a follower in your hive. Why not wedge the ends of frame, and save so much extra? Make a wedge one way ¼ wide, one way ⅜, and you can make one width answer. I know that extra board makes more work and cost, and takes up valuable room.

Hallowell, Me., Dec. 21. E. P. CHURCHILL.

[All that is necessary to make a hive of Hoffman frames reversible is to wedge or key up the frames. Lay a couple of sticks ⅝-inch square across the frames, and at each end. Put a bottom-board on, turn the hive over, replace the cover, and the work is done. Leave the hive thus until the bees have built the combs down, and then restore to its normal position. With the Dovetailed hive this can be done very nicely. We put in a follower or division-board because, when removed, it gives more room for handling frames. Many times all that is necessary is to pull out the follower, shove the frames apart in the center, look down between the combs, and close up without removing a frame. Then for any thing less than eight frames the division-board is a necessity. This often occurs when preparing for winter, or in queen-rearing.]

THE NEW TOP-BAR; THE MOLDED COMB-GUIDE NOT NEW.

In the last issue you say, "It seems almost a wonder that somebody did not think of this before." Somebody did think of this. The triangular top-bar comes pretty near it, only the little buzz-saws would persist in making the bevel a plane instead of a concave surface. About fifteen years ago a sash and blind factory in Vermont made some top-bars in just this form by running them through the "sticker," which was provided with knives ground in the form of two intersecting arcs of a circle. The frames were made to order for a neighbor of mine. I believe they were quite satisfactory, yet we did not recognize any gain in making them concave.

An advantage in making the bottom-bar narrow would be found when we attempt to lift a frame from between two others, the narrow bottom being less likely to crush bees or scrape the adjoining combs. A disadvantage is, that this form is no better adapted to winter use than the loose one.

In your experiments in wintering, why not try a few colonies in single-walled hives outdoors? It would act as a check upon hasty conclusions, and help to determine how much of your success is due to the hive and packings, and how much to thorough preparation beforehand. W. H. Upton.

Morning Sun, Iowa, Dec. 21.

[The top-bar you describe is not exactly like our own. Our cut, as we explained, did not quite do justice to the comb-guide. This latter projects down about ⅛ inch below the two intersected arcs, forming a bead, and an excellent place for the fastening of foundation, as we shall shortly explain. In your top-bar you discovered no gain because there was practically no comb-guide. Our top-bar has the comb-guide part and parcel of it.

We did not claim that there was any advantage in such a bottom-bar for wintering. It *couldn't* make any difference.

In regard to wintering in single-walled hives outdoors beside those in double-walled hives—that is just what we have been doing. Bees in single-walled hives have died for us before the first of January. We have had most disastrous results in trying to winter outdoors in hives not protected. We don't think, but we know, hives must be protected with cases.]

USING STARTERS FOR WIRED FRAMES; A QUEEN WHOSE PROGENY WOULDN'T RAISE DRONES, OR SWARM.

I see articles in every Gleanings about wiring frames. Now, I let the bees do most of their own wiring. I do it in this way: I wire the frames as you recommend in A B C; put in a starter about 2¼ in. deep; put the frame between two full frames of comb and brood. The result is, that I get the comb built clear to the bottom-bar, and no sagging, as straight and smooth as a planed board. As a rule, by the time the comb is built down it is full of brood. I also put it the same way in the upper chamber, where it works as well. I do not think it pays to use full sheets of foundation.

Now about a queen you sent me last year, a select and tested one. Last spring I wanted to raise some early drones if I could, so I fed well and put drone comb into the brood-nest, but I could not get a drone. I tried all summer to get her to fill a frame of drone comb, but could not get her to lay a drone egg. She filled the brood-nest from a four-frame nucleus to a twelve-frame colony, with eggs. Besides that, I got 42 lbs. of extracted honey; and if there is a non-swarming race of bees I think her bees belong to it, as there was not a swarm cast from that colony. I received her a year ago the 21st of last September.

Dr. C. H. Peabody.

Providence, R. I., Nov. 21.

[You can use starters, and the bees will build them out into combs over wires; but you are liable to get drone-cells instead of worker-cells. For this reason the majority of bee-keepers decide that they must have full sheets of foundation in the brood-nest. The rearing of many drones is pretty apt to be prognostic of swarming. Inversely, the rearing of *no* drones means little or no swarming. It has been noticed, also, during the past summer, that drone-traps at the entrance curtail swarming because they kill the drones. Therefore one reason why the progeny of your select tested queen did not swarm was because no drones were reared.]

HOW TO MAKE A DAMP CELLAR DRY FOR BEES; INFORMATION WANTED.

Can some one tell me how a bee-cellar can be remedied to prevent it from being too damp during the time the bees are confined therein? The cellar was dug eight feet deep with good thick walls from the bottom to the top, and the floor made of cement. The land lies perfectly level for quite a distance around, and a race of water runs on the west side about 8 rods from the cellar. The soil is what would be called clay for the depth of 6 feet, then comes sand. The cellar was so damp last winter that it molded the combs considerably; and as the old bees crawled out and died, they, too, would become moldy very soon thereafter. There was an abundance of good ventilation in the cellar. This cellar has cost the owner now not far from $100, as it now is, and he does not like the idea of casting it aside and building something else, so he asks if there is not some way the evil may be remedied without going to the expense of making another. A.

[If your soil is porous, with a race of water so near as you say, it would be difficult to make the cellar dry. A grout cement bottom is supposed to remedy the evil if any thing will.]

HOW TO RENDER OUT OLD COMBS.

I wish to ask what is the best method of extracting the wax from old combs. Do the extractors accomplish that object better than any other way of separating the wax from old combs; i. e., can you get more wax than by boiling and straining and using a squeezer? I should like to know the experience of your contributors. It is certainly a rather unpleasant job when done in the old-fashioned way of boiling and straining. A. P. Fletcher.

Ludlow, Vt., Dec. 15.

[The Dadants say, Wait till cold weather, and then mash 'em all up fine, after which render them by any of the well-known methods. There is no better method for getting out all the wax than by boiling, straining, and squeezing the residue, no matter by what kind of machinery it is done. It should be remarked, however, that none of the residue should be thrown away. It should be treated to sulphuric acid, as described in last year's volume.]

THE NEW DOVETAILED CHAFF HIVE, AND HOW IT PLEASES.

The five single-story chaff hives I purchased of you in the flat last month went together nicely. Every piece was accurately sized, and the whole of good material, and made in a workmanlike manner. I transferred my bees to them with ease. They will surely be a successful outdoor winter hive, and for summer they are just as handy as the single-walled hive. You have not asked my advice, and may not thank me for it; but I would suggest, however, that, if the covers were made one inch wider they would be better, as the slight margin they now have will sometimes let the wet in. JAS. S. SIMONTON.

West Richfield, O., Dec. 12.

[We make a wider and deeper cover for those who prefer it. For winter use it is not intended that the flat cover shall be put on the hive. Put a super on, and then the covers.]

THE LARGE AND SMALL BEE-KEEPER, AND TINKERING WITH TRAPS.

It is quite amusing to read the descriptions of the many traps and notions that some of your correspondents seem to regard as absolutely necessary to success. One who keeps a few colonies of bees for pleasure may enjoy "tinkering" with all the "new notions;" but for those who keep bees for profit, and keep them by the hundreds or thousands, as is done by many persons in California, it won't pay, and there is no time for fooling in these large apiaries. Many things that might be applicable in the East would be useless here. DELOS WOOD.

Santa Barbara, Cal.

[Yes, there is a difference in localities, and a difference in bee-keepers. We can't all like the same thing.]

WHAT IS A GOOD MAN IN THE APIARY WORTH?

How much can the owner afford to pay, per colony, to a practical apiarist, in money, to manage, say, not less than 250 or 300 colonies of bees that are in good condition and in a fair location? The owner is to furnish all material necessary for the successful management of the bees. The apiarist is to furnish all the labor. How much when bees are in bad condition and in bad hives? S. B.

[We would advise hiring your help by the day. It would be difficult if not impossible to make a fair schedule on the other plan. Labor in the apiary is worth from 25 to 50 per cent more than common labor, and the price of this varies as to locality.]

MOLES IN THE APIARY; HOW TO GET RID OF THEM.

I should like to have some information on the following: I have on my farm, south of this city, an apiary of fifty colonies. They are located on the south side of my residence, and I do not care to move them; but moles are undermining the ground in that particular place so badly that my hives are sinking into the ground. What can I do in this case?

Columbus, O. EARLE CLICKENGER.

[We would not move the bees, but poison the moles. "Rough on Rats" ought to exterminate them. If you do not like to use poison, procure a good cat or rat-terrier.]

BROMIDE OF POTASSIUM; A CAUTION.

Friend Root:—I wish to call your attention to what Dr. J. H. Kellogg says in *Good Health*, Nov. No., page 341, about bromide of potassium. He says, "A vast amount of harm has been done by the use of this nostrum." Some years since, I received apparently temporary benefit from the use of this drug, and was told by our family physician that it would do me no harm; but I very soon found out that it was injurious to me, and I quit the use of it. W. P. ASPINWALL.

Harrison, Minn., Dec. 4.

PURE ITALIAN QUEENS THAT ARE BLACK.

I had an occasion to start a lot of queen-cells, and one of the second lot of queens turned out to be black. She was as black as the blackest lump of coal you ever saw. I kept her, and she throws good Italian bees. Did you ever know of a jet-black Italian queen?

Buffalo, N. Y. JAMES ROBINSON.

[We have had Italian queens that were perfectly black, and yet their bees were perfectly marked Italians with three distinct yellow bands, and, besides this, they showed all the other qualities of pure Italians. This is a fact we have mentioned in our price list. Italian queens may be any color from black to yellow, but their bees should show three yellow bands.]

A DISAPPOINTING SEASON.

The past season has been rather disappointing to the bee-keepers in most of New Jersey. Although both clover and buckwheat were never more promising than at the opening of the past season, yet, owing to excessively wet weather following, my yield from 58 colonies was but 995 lbs. W. W. CASE.

Baptisttown, N. J., Dec. 1.

THE FIVE-BANDED BEES.

On reading the report of Mr. Wm. L. Ewing, page 930, 1891, about five-banded golden Italian bees, I wish to say that I have tried them and found them very gentle to handle, and fine honey-gatherers. I must say that they did better than the three-banded. R. E. SMITH.

Tilbury Center, Ont., Can., Dec. 8.

1000 LBS. FROM 11 COLONIES, AND INCREASED TO 24.

It has been a very good year for bees. I had 1000 lbs. of comb honey from 11 colonies, spring count; increased to 24. G. J. HOBART.

Westford, Vt., Dec. 7.

[You have done exceedingly well.]

Can you tell me what is the cause of brood-combs being of a moldy color at this season of the year, when there is a strong colony of bees in the hive? G. A. LATIMER.

Norfolk, Neb., Nov. 25.

[Dampness is the cause. The use of absorbents will cause this. It will probably do no harm.]

GARDENING BETTER THAN BEE-KEEPING.

Gardening pays better than bee-keeping here, although I am much attached to my bees; but the range is not good for them.

JOHN FRANKLIN.

Round Rock, Texas, Dec. 18.

A California cherry-grower claims that bees are necessary to grow a successful crop of cherries, and says that the question is, to bee or not to bee.—*Rural New-Yorker.*

DR. MILLER'S PLAN OF WINTERING ALL RIGHT.

Tell Dr. Miller that I have wintered with perfect success in single-walled hives packed with straw, similar to his plan, only I left them where they stood, and put a cushion over the frames and piled straw up around the sides. All my hives face the south; and unless the winter is severe I do not protect the south side. If you use good long oat straw there is no trouble about its wetting in; at least, I have had none in six years' experience. The only trouble is its untidy looks; but if it is neatly done it doesn't look so bad. It is no more trouble to put on and take off than outside cases, and is decidedly cheaper; and, besides, there is not a lot of loose traps to house. We have to winter outdoors here, as all the cellars are very damp. Do you remember my speaking of having trouble with my bees going to a neighbor's well of soft water last summer? Well, I took A. I. R.'s advice, and drilled for that vein of soft water, and got it; and since then my bees trouble nobody's well but my own. JOHN BURR.

Braceville, Ill., Dec. 21.

THE KAWEAH COLONY A THING OF THE PAST.

A few months ago I wrote GLEANINGS a letter, denouncing the above colony as a fraud and a swindle (see page 595 for July 15, 1891). I received some very sharp replies to said article. As I stated, I had investigated the workings of said colony, and I *knew* there was dishonesty and rascality in the management to such an extent that it was sure to come to naught. A few rogues were gaining money in handsome sums of the poor, honest, and confiding toilers, by misrepresentations. *Lies* were the game. I am happy to inform your readers that Kaweah Colony is a thing of the past. It has gradually sunk into its inevitable fate. It is dead—so recognized by its leaders, and almost if not all of its members here in Tulare County. They have sent out a circular to that effect, and several leading papers have published long articles on the same. J. G. GILSTRAP.

Last, Cal., Dec. 25, 1891.

PURE GRANULATED SUGAR FOR BEES.

Friend Root:—It occurs to me that the subject of pure sugar for food for bees is one of national importance to bee-keepers, and ought to receive the attention due it. Last fall I fed two colonies with syrup made of granulated sugar, with about ¼ extracted honey added. I now find that the sugar is not only granulated, but caked hard in the combs.

We are having nice warm weather, bees flying, and I have taken advantage of this to examine some of my bees, and I fear I shall lose the two fed with sugar. I have seen it stated somewhere that confectioner's "A" sugar is better and purer than granulated; that bees fed the granulated went through the winter in a weakened condition, and would soon die out. I am no chemist; but this seems to me to be very reasonable. Could not Prof. Cook analyze the two grades of sugar, and report through the bee-journals? Can't you arrange to have him do it? Would it not be better still to have a pure sugar manufactured especially for bee-keepers—one that would not easily granulate? It occurs to me that the Bee-keepers' Union could arrange with some reliable manufacturer to have such a sugar made and sold to bee-keepers at wholesale prices for about the same as granulated sugar. It might be furnished to members of the Union at wholesale prices, and charge a small advance to those not members. This might be the means of greatly increasing the membership of the Union. I am going to join the Union myself this coming year, and expect to remain a member of it. If such a sugar is made I will take 10 barrels next July, and would take 15 to 20 barrels every year thereafter. I would also suggest that it be put up in barrels of a uniform size of 350 lbs. each. T. K. MASSIE.

Concord Church, W. Va., Dec. 23.

[We have not been able to detect any difference in granulated sugar. We have used a great deal, in feeding, that made from the beet, and some from cane sugar, but we were not able to notice any difference in results. We have always regarded granulated sugar as a pure article, and the most uniform and pure of any sweet known. It is next thing to impossible to adulterate it with cheaper sweets, and yet have the fact concealed. Still, we may be mistaken, and therefore solicit facts from those who are in a position to know.]

NOTES OF TRAVEL

FROM A. . ROOT.

AT COLORADO SPRINGS.

Dec. 1.—I met Prof. Cook, his good wife, and their son, Albert Cook, but we usually call him "Bert," for short.

As I described things fully, three years ago, along here, I have not thought best to write them up again now. Bert is a fine strong active boy of 18, and bids fair to be his father over again.

Although we were having very fair summer weather, I told my companions that, before we got over the mountain summit, we should have winter, and perhaps sleighing; but they laughed at my prediction; but when a two-horse sleigh at Leadville took us from the station to the hotel they began to have more respect for my knowledge of mountains and altitudes. Bert took occasion, after supper, to have a skate in a city whose altitude is greater than any other of its size in the world. One would suppose, of course, that lead was the principal mineral in and around *Lead*ville; but not so. Gold and silver are the minerals that give the place its celebrity. The grand canyons of the Arkansas and Rio Grande, with their rocks and strata, gave, of course, much food for talk and study; but Prof. Cook tells us that geologists nowadays do not give earthquakes much credit in accounting for this wonderful region. The contraction of the earth in cooling, and the action of water, which has very evidently, at some time, covered much if not all of this region, it is thought, has done most of it.

The convention at Salt Lake City, Dec. 3 and 4, was fairly well attended, and our efforts resulted in getting well under way a *permanent* organization. This seems much needed for several reasons. Foul brood has been making great havoc in some localities around here; and for some time back, but little has been done about it. The market price of honey has also been a good deal demoralized. The price has been allowed to go down because no one has gathered up the product and sent it off where it would command a proper price. I am greatly indebted to two bee-friends, Henry Taufer and J. C. Swaner, for making my visit pleasant. Salt Lake has now over 50,000 inhabitants, and over 75 miles of electric street-cars. Three years ago such a thing was unknown here; but now they have runs equal to 12 miles in a single straight line, and they run up the mountain-side, and along the "mesa"* wherever cottages are found, until horses and wagons are almost unnecessary. Here I first found cars *heated* by electricity. I have long been expecting this; and now, dear friends, electricity is here, ready not only to light our houses and do the work, but it is already giving heat. Heat, light, and power are given where wanted, through the medium of a simple wire. Let us hunt up all sources of power not only our natural waterfalls and rivers, but our artesian wells, gas-wells—let us gather the power they give, then with a simple wire we have power to carry ourselves and our burdens from place to place; light to make our cities and dwellings as bright as day, even at midnight; and last, but not least, *heat* to warm our homes comes also, along this self-same wire. To warm a car, they have a heater in each corner, under the seat. I burned my fingers in exploring into it, so I ought to know. Yes, I fully believe that, through the medium of electricity, this restless and at times unmanageable servant of ours, *the wind*, is ultimately to give power, light, and heat; and it is to be made *tame*, *steady*, and *docile*. You see?

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*Mesa is a Spanish word meaning *table*, or any level spot on the mountain side or summit.

ONE OF OUR ENTERPRISING BEE-MEN.

Woodmansee is already talking of getting power to run his bee-hive manufactory from one of the street-car companies; and he says if he could use the power all the time (they rent it by the month) it would be cheaper than steam.

Natural gas has just been added to the long list of Utah's natural products; and yesterday (Dec. 7) a party of us went out by Great Salt Lake to see a new well. The gas has a pressure of over 100 lbs.; and when let off it is the greatest "mud-slinger," perhaps, the world ever saw. Some of the papers suggest that it be utilized in the next *political* campaign. Well, it has covered the tools and derrick, and the landscape for acres around, with the mud it has belched forth. In some places we found great holes in the ground, big enough to bury a small dog, made by immense chunks of mud hurled to such a height that, when they came down, they buried themselves and left a hole above them. After we had examined the well, as it was winter weather our party of about thirty adjourned to the nearest house, owned by E. Garn, Centerville, Davis Co., Utah, to get warm. Said house is warmed by natural gas, and has been for five years past. He drilled, or rather drove, down an iron pipe about 60 feet. He got water and gas too, and, like a Yankee, he put a tight barrel over the top of the tube. Near the bottom of the barrel a stream of water runs out constantly; and exactly in the top he put a tube, made part of iron and part of rubber hose, so as to carry the gas into his cook-stove. While we were tramping the new kind of mud all over his floors I happened to look out of the window and saw quite a row of bee-hives. Don't it beat all, how you find a bee-man around when you least expect him? Pretty soon they bantered him for honey; and before the train got along he had loaded up almost every last man with one or more sections of alfalfa honey. Our crowd had rather more knowledge of bees (but a little less silver) when they boarded the train. I was rather glad, for it will cost him something to clean up his floors. His honey was all stored in 1-lb. sections, of course.

In this region artesian wells are so common that, when a farmer wants water in a particular pasture lot, he just drives down an iron pipe, and then lets the water pour over into a trough. In one place the well had made the ground so swampy that they tried to plug it up; but the plug didn't fit very well, and so it sent the water in jets on the trees and every thing around, where it had frozen in all sorts of comical shapes. I mention this only to illustrate how not only *water* but *power* is allowed to run to waste just through neglect, and, shall I say—stupidity? In the same locality are hot springs—almost as hot as you can bear your hand in the water. It comes out from under a beautiful natural boulder—a boulder so large that it is a small mountain, and the water is most wonderfully clear and sparkling, even if it is hot. Well, the pebbly bottom is composed of patches of the most brilliant blue, green, yellow, and, in short, almost all the colors of the rainbow, these colors being, I suppose, caused by the precipitation of the various chemicals found in the water. It boils and bubbles up in such volumes that it would fill, I think, a twelve-inch pipe, and then it goes steaming off across the fields until it finally forms a warm lake; and as it doesn't freeze over, ducks and water-fowls come there to swim all winter long, making it a favorite hunting-ground. No one has yet ever undertaken to utilize the immense quantities of heat going to waste here. It would heat greenhouses and hotbeds, miles of them, and would comfortably warm all the dwellings in a fair-sized city. The temperature is absolute and steady, and the expense nothing, after the pipes are laid to lead the water. At present it is utilized only for bathing-houses.

I find I must break the thread of my narrative at this point in order to say something more about the town of Greeley, referred to in the latter part of my previous letter, Dec. 15, and to relate a pleasant little incident which happened to me there.

When our good friend Horace Greeley said, "Young man, go west," he set the example himself by going west and starting a beautiful town which still bears his name, and still does him honor, by being a strictly temperance town; for every foot of land was so deeded that the owner loses it the minute he engages in the liquor-traffic. It is interesting to know that a town *can* be started and kept sober for at least a long term of years, in just this way. The people, buildings, and every thing about the place, show the good effects of it.

At the convention we had a good joke on Mr. Theo. V. Jessup. Before he knew I was to be present he was very earnestly engaged in soliciting subscriptions for GLEANINGS, and even came to me, handed me a copy, and commenced extolling its merits. When some mutual friend came forward and introduced us, he looked embarrassed enough.

"Never mind, good friend," said I. "You needn't feel troubled. I believe this is the first time in my life that I have been urged to subscribe for my own journal."

The electric plant for lighting Salt Lake City is, I think, the largest and finest I have ever yet seen in any city. There are ten immense boilers, giving, all together, 1200 horse-power, and the dynamos for generating the electricity compose the latest and finest that are now known. A smoke - consuming apparatus is already attached to a number of the boilers, and it works so perfectly that not a ray of black smoke can be seen coming from the top of the stack. If this thing really succeeds, oh what a blessing it will be to the smoky, dingy, and blackened cities all over our land!

Utah not only claims to beat the world in variety of mineral products, but she has produced nearly 1000 bushels of potatoes to the acre, and 80 bushels of wheat. Besides producing almost every thing grown in any northern State, she is growing successfully both raisin grapes and cotton. A new beet-sugar factory is now in successful operation, and candy is shown in her confectioners' windows, made from sugar of her own production. Even though her public schools are *new*, like her electric railways, they are "getting there" all the same. Of course, I couldn't go to *all* the churches, but I attended two different Congregational, and found large and intelligent audiences. At the Y. M. C. A. Sunday afternoon I found a larger attendance than in any other city where I have traveled. I talked to them for perhaps five minutes, and I think more came to me to shake hands, when the meeting closed, than in any other place I have visited. With open saloons, of course they have intemperance; and the swearing on the streets in some parts of the city is pretty bad; but I saw notices in some of the public buildings forbidding it, and calling attention to the law in regard to it.

Dec. 9.—I am off for Washington this morning. The railroad takes its course along the Salt Lake Valley, at the foot of the mountains. In many places the number of springs at the foot of the hills is so great I am told no irrigation is needed to get immense crops. In these spring runs, a great abundance of most beautiful water-cress is found all winter long. In fact, I saw where wagonloads of it might easily be gathered. Hot springs are also found at many points. My impression is, the heat comes from chemical action rather than from volcanic fires in the interior of the earth. I find the hot spring water is all more or less charged with mineral salts. Well, the water from the melting snows on the mountains sinks into the earth; and where minerals and chemical salts are so abundant it is not strange that this water soon becomes a strong solution of something. Now, it is well known in chemistry that two solutions poured together often give out violent heat. Sulphuric acid and water is a familiar example. This will become boiling hot if mixed in the right proportion. The hot spring of Salt Lake is heavily charged with sulphur, and at the same time is very strong of common salt. If you stand to the windward side, the sulphur fumes, as they come off in the vapor, are quite unpleasant.

LETTER TO HUBER.

Well, my boy, there are several funny things true of your papa this afternoon. Let us see:

First, I am away up in the clouds—yes, almost a mile high. You see, the mountains are up in the clouds; and as we have to cross them we had to go up into the clouds too. Oh, my! but you ought to see it snow up here. You know you wanted it to snow when I left home. Second, I am away off in the State of Idaho. If you look on the map you can find it. There are a great many mountains in Idaho, and lots of pretty valleys full of horses and cattle. There are some very good horses here. Two men just jumped on their horses and bounded off through the snow and sage brush. How the horses did make the new soft snow fly with their hoofs! If it were me I should almost be afraid of getting snowed under. The sage brush is about as large as current-bushes, and so close you can just get between them. There are miles and miles of it. I think the bees might get honey from it in the summer time. We just saw a farmer out among the sage brush, living in a tent—yes, a tent in a snowstorm. Shouldn't you think he would get pretty cold?

The third thing is—what do you think? Why, to-day is the first time in my life that I was 52 years old. Funny, ain't it? that my birthday should come when I am away off up in the *clouds*, in a big *snowstorm*, out in *Idaho*.

Near McCammon, Idaho, are some strange rock formations. At first I thought a carload of railroad-ties had been stood on end for some purpose, and that they had them all tumbled every which way. Then came another such heap, then lots more. Soon I saw they were long stones, split out by Nature's hand. The queer rock all seems to be on end, and the rain and frost have split it up like blocks cut off for firewood, and the sticks just lie tumbled about. Many of them would make beautiful fence or hitching posts. In one place they are long enough for rails, or short thick telegraph-poles; but the most of them are about the length and size of ties. They stand along the track for miles, and on some of the bluffs there are just acres of them. I tried the Kodak on them; but as the train didn't stop, I am afraid the picture won't be very good.

All through Idaho we find the strange rocks I have described. A bunch of them stick up on the plain, and the pieces are scattered all about. Toward the eastern line the rocks are nearer cubical, say from two to three feet on a side; and scattered here and there over the desert waste are huge building blocks of stone, spread out, as it were, just right for the mason to go to work at. There are enough such blocks of stone for all the cities and villages Idaho will ever build.

Dec. 10.—To-day my heart is rejoiced to see a real genuine *rail fence*. After traveling for three weeks over miles and miles with no natural forests, it is not strange that I hungered for the sight of old familiar scenes. Even the horses and cattle seemed more natural, and more at home, on the other side of a rail fence. At Pleasant Valley, Oregon, I saw, also, great piles of native lumber about a sawmill. You may think strange I make so much of this; but, dear reader, what is our great United States to do for lumber when the native forests are gone? How are we to continue to build when the trees are cut down? I should say that at least nine-tenths of our land is *timberless*, and yet in many places the great effort seems to be to destroy and waste it. Since getting into Oregon I am also rejoiced to see nice patches of fruit surrounding every home. Thrifty orchards and patches of small fruit seem to go well with rail fences. Our conductor just passed through the car, exhibiting an immense apple, and a perfect beauty. He said a man just gave it him who raised it on his farm up among the hills.

Along here the rocks and cliffs are penciled with a delicate green, shading off into many tints of yellow. The effect is very fine. I think it must be owing to the minerals and chemicals dissolved by the water.

Dec. 11.—Long before daylight I was at my post by the car-window. The pine-trees are so large and so many, the daylight has been slow in getting through; but the scenery as we approach Portland is wonderful. The track runs between the Columbia River and the cliffs, and said cliffs are, some of them, almost if not quite half a mile high. Well, to add to the charm of the evergreen trees and the cliffs, beautiful waterfalls come pouring and leaping down the cliff at frequent intervals. Some of those falls almost spatter the car-windows, they are so close; and when I tell you that one of them, Multnomah, pours down *eight hundred and fifty feet* you need not be surprised that I was enraptured. Besides the falls, Nature has clothed the rocks and cliffs with beautiful green mosses and ferns, and I suppose this is the effect of the abundance of rain; for now, dear reader, we have passed the thousands of miles of rainless regions, and here in Oregon it rains both winter and summer. In fact, the abundance of rain here is one of the standing jokes. A passenger, who overheard my questions, remarked with a laugh, "Why, my friend, sometimes here with us it rains *twice* on the same day."

GLEANINGS IN BEE CULTURE
Illustrated Semi-Monthly
36 Pages 7x10
$1.00 Per Year

In the multitude of counselors there is safety.—Pr. 11:14.

While this issue is going to press we expect to take in the Michigan convention at Grand Rapids, which will be held Dec. 31 and Jan. 1.

We have given quite a long report of the North American in this issue, but by no means so full as will appear in the *American Bee Journal*, of Chicago. Thomas G. Newman & Son, publishers, will be glad to mail you sample copies.

The December *Bee-Keepers' Review* comes out with a new feature; i. e., a small portrait, in half-tone, of its regular correspondents, at the head of their articles. At conventions we like to see as well as hear the big bee-guns. Bro. Hutchinson is going to gratify that desire, so far as it can be done on paper, for a time at least.

We receive a great many kind letters, especially at this time of the year. They are of the real, homelike, chatty sort, containing words of cheer and encouragement. Such letters are always welcome, and have their influence in molding the future policy of the journal. It is impossible to answer them all, but we extend our thanks here to one and all.

It has been observed that bees will winter on honey-dew; but just how much better they would have done on sugar syrup is somewhat of an open question. Here is a little item in point, from a subscriber, Mr. E. E. Smith, of Carpenter, Ill. He writes:

> Bees wintering on honey-dew are rearing brood; but there are about twice as many dead bees in front of their hives as there are of those fed on sugar syrup.

The senior editor is not "enjoying" the best of health. He has had one or two slight relapses, the last one being at Portland, Oregon. At last reports he had left Portland for Fidalgo, Washington, the place where H. A. March, a bee-keeper and supply-dealer, holds forth. From his last letter we presume he is, ere this, on his way to a convention in Los Angeles, to be held Jan. 6 and 7. When he gets that far south, we hope that his malaria, or tendency to fever and chills, will entirely disappear.

Since our article in our last issue, we have had some inquiries as to whether the improved Hoffman frame will go in the Dovetailed hive. Why, to be sure. The real purpose of the article was to explain how the Hoffman frame had been adapted to that hive. Yes, this frame will go in any standard Langstroth hive, such as the Dovetailed. All our frames of standard size are interchangeable with any of our standard hives. The new Hoffman will go in the old-style Simplicity as well as in the latest Dovetailed hive.

No one should attempt to secure a patent on some device unless he is passably familiar with the literature relating to it—certainly not until he has read one or more of the excellent text-books. The patent-office reports show that even now patents are being granted to parties who are lamentably ignorant of the first principles of bee-keeping and of what it requires. Gleanings of to-day is *not* opposed to patents granted to practical men; but it unites with the *American Bee Journal* in protesting against this useless waste of money when the patent can be of no possible use to the owner.

We are sorry to note that la grippe is still seriously inconveniencing Thomas G. Newman & Son. It has taken a severe hold upon the junior member of the firm, confining him to his residence; and even Thomas G. himself is nearly ill. We sincerely hope for their speedy recovery to health. We have already ourselves had a mild attack of grip, influenza, or something else, but we are happy to say, at this writing, that we are on top. Dr. C. C. Miller is another one who has been suffering quite severely from the ravages of the epidemic. Although quite weak, he is still able to attend to some of his correspondence.

In one of our subscription blanks, the following words are written: "Please discontinue." No name or address was signed. As this thing is continually coming up, both for discontinuances and for renewals, accompanied with remittances, we must remind our subscribers again to please let us know who they are. We have no way but to wait for a growl, and perhaps our subscriber who desired us to discontinue may be very *much mad* because we do not obey orders; and no doubt the other fellow who has sent us a dollar for renewal will be very much put out because the date of his journal wrapper has not been changed in due time.

In another column S. T. Fish & Co. give us some startling news, to the effect that at least one large bakery has abandoned the use of extracted honey, and is now using, and will continue to use, granulated sugar, because it is so cheap, and because it is so much better. We have been a little skeptical about the low price of sugar affecting the honey-business, but perhaps we shall have to give up. If it does any thing, it will affect only the sale of the poorer grades of extracted honey. Comb honey of all kinds will hold its own just the same. The poorer and darker grades of *extracted* may suffer considerably from competition in just this way. Let us have the facts.

Remember, any subscriber may have his journal stopped at the time paid for if he will simply so order when remitting. Those who are of this class can be accommodated as well as those who are in the great majority, who do not want their journal stopped, and who will remit as soon as they can make it convenient. But all should remember that we do not allow any one to get very far in arrears before his journal is stopped, or, at least, some arrangement has been made whereby it can be continued. We are glad to state that we have no deadheads on our list. It is practically all paid up. Our advertisers get the advantage of a list of live subscribers. A deadhead list, however large, would be of no practical benefit to advertisers, but a large expense to us.

It is no doubt a fact that more *large* bee-keepers were present at the North American at Albany, and, as a natural result, a larger aggregate number of colonies were represented, than at any other bee-convention in the history of the North American. There have been larger attendances at other conventions, but never a larger number of men who count their colonies by the several hundreds. There was not only present the largest bee-keeper in the world, but a considerable number who own individually in the neighborhood of 300 or 400 colonies; and yet they are not always the ones who say and do the most in conventions; but when it comes to practical experience as touching the production of comb or extracted honey —well, they know how to "get there."

THE *American Apiculturist* for January has got things just a little mixed in regard to the Albany convention. On page 11 this sentence occurs: "The great convention has met, and was a grand blank, as will be seen by the report of its proceedings in this issue." In justice to that convention, and to Mr. Henry Alley, we gladly make an explanation. Mr. Alley says he originally wrote that the convention was a grand *success*. At the time the galley proof passed through his hands he was not sure whether it was a success or a failure, and so drew his pen across the word "success" and wrote in the margin, "Leave this blank." Mr. A. closes up his letter thus: "I'll be blast if the girl didn't insert the word *blank*. What a blunder!" Yes, Mr. Alley, it was quite a blunder. We would suggest the propriety of reading the page as well as the galley proofs. We members of the Albany convention will forgive you this time.

J. W. PORTER, of Charlottesville, Va., sends us the following letter from the Assistant Secretary of Agriculture, Edwin Willits, which will explain itself:

DEPT. OF AGRICULTURE,
WASHINGTON, D. C.
Office of Assistant Secretary.
December 7, 1891.

Mr. J. W. Porter:—Yours of the 4th instant, mailed the evening of the 5th, reached me this morning, with reference to the meeting of the North American Bee keepers' Association next year in Washington, under the auspices of the Department of Agriculture.

In answer I have to say it will be gratifying to this Department to have such meeting held here at the time indicated, and we shall be most happy to furnish your Association with every facility in our power, both as to rooms for the meeting of the association, and as to co-operation in other respects on our part. Will you please communicate this fact to the association, and oblige

Yours truly,
EDWIN WILLITS, Assistant Sec'y?

Good! We have a friend in court. Mr. Willits will be remembered as former president of the Michigan Agricultural College, and as an old friend and co-laborer of Prof. A. J. Cook. He has, therefore, more than an ordinary interest in bees and bee-keepers. We feel that we but voice the sentiment of the association when we express our thanks to him for his interest in our behalf. Mr. Porter wrote a letter to the writer, urging that the next meeting of the North American be held in Washington. When Capt. Hetherington proposed the capital of the United States, we stated the contents of Mr. P.'s letter, and fell in with the scheme at once. You know the rest.

AFTER Oliver Foster, of Mt. Vernon, Ia., secured a lower freight classification on honey, granulated, shipped in pails, we asked for a simple method of solidifying honey on short notice. The problem had been, not how to granulate it, but how to keep it from doing so; but there are certain reasons why, in some cases, it would be desirable to have the liquid product candied on short notice. Granulated honey ships more readily, and consumers are already demanding it that way for table use. No one seems to have answered our inquiry; but quite by accident we ran across the following, in the *British Bee Journal*, the editor of which translates it from a French bee-journal, *Le Bulletin Apicole:*

If the bee-keeper wishes to have his honey granulated without having to wait six or seven weeks, he can, after a week, churn it the same as is done with cream to obtain butter. Honey treated in this way granulates with a very fine grain. We have just tried this process on honey that had been extracted eight days, and in fifteen minutes the honey, in a one-pound bottle, passed from the thin liquid state to a thick syrup. Sometimes honey granulates in coarse grains, which makes purchasers think that it is adulterated. It can be melted in a water bath and then exposed to cold, when it will granulate very fine.

There, friend Foster, and everybody else who is interested, here is a plan that will probably work—that is, if you can't wait till cold weather.

"HONEY GLUCOSED BY THE HUNDREDS OF TONS."

WE have just received the following letter from M. H. Tweed, which will explain itself:

Friend Root:—I don't understand why honey-producers as an organized body do not do something toward helping on the time when this nation will have a pure-food law, such as every even half civilized nation has all over the world, excepting this. It would help the bee-keeper wonderfully. Thousands of people in cities do not use honey to any extent, not because they do not like it, but simply because they have no confidence in the article they buy, whether it be comb or extracted. Now, to show how such a law would help, take a look at the good that is done by the one in Ohio. You ask a dealer in maple syrup in Pittsburg if he has pure maple syrup. He will, if he has any Ohio syrup on hand, at once say, "Yes, this is from Ohio, and I can guarantee it pure, for they have a strict law there against the adulteration of it." It inspires confidence in the article at once—so much so that the dishonest dealer says his syrup is from Ohio, whether it be the truth or not. And another advantage would be that, instead of hundreds of tons of glucose being sold in our cities as honey, there would be that quantity of honey sold instead.

Allegheny City, Pa., Dec., 1891. M. H. TWEED.

Mr. Tweed makes a good point, providing glucose *is* sold by the hundreds of tons for honey, or mixed with extracted honey. But we can not believe that such a state of things exists; that is, we think our correspondent is misinformed. If so, we should have had some inkling of it before this. We have carefully traced down all these cases of glucosing extracted honey, and, with the exception of one case in Detroit and one in Chicago ferreted out by Mr. Newman we found that nothing but pure honey was sold. We do not deny the existence of *mistrust* on the part of consumers as to the purity of extracted honey; and this mistrust, although i may be entirely unfounded in fact, does almost the damage if the practice existed in reality. Now, let us have the facts. Let us face the lion in his den. *If* extracted honey *is* glucosed to any great extent it would be folly for bee-keepers and bee-papers to try to cover it up for fear of the bad effect on the general public. GLEANINGS is willing to invest some money in having the truth brought to light. We should be glad to have those who have positive evidence give us information, and we will see what can be done. Bee-keepers may depend upon it that they will have the hearty support of all the bee-papers and of all bee-associations, including the North American and the Bee-keepers' Union. Now, we as bee-keepers should handle this matter delicately and wisely, and be very careful about raising a false alarm *unless* there is real ground for alarm; and if glucosing does exist to any considerable extent, by all means let us go in for a pure-food law that will include honey—not only for the State of Ohio, but for every State.

Whatever we do, it should be thoroughly understood that *comb* honey can not be glucosed;

hat is, feeding the bees the stuff, would be exceedingly unprofitable. It is only the honey in the *liquid* form, that might be glucosed. If there is any of the packing houses that are guilty of this latter upon satisfactory evidence, we will see that they are thoroughly advertised and the public duly warned against them. Yes, we will go one step further, if recourses to the courts will help us.

SPECIAL NOTICES.

BURLAP ADVANCED.

The burlap we have been selling for the last year or two has been rather light, being only 7½ ounces to the yard. We have just bought a new bale, 10 ounces to the yard, and, of course, it is worth more. The price from now on will be 10 cts. a yard; 10 yds., 90 cts.; by the bale of 200 yds., 7½ cts.

Enamel cloth has again declined in price, so we are able to offer it at the old price of 20 cts. a yard, or $2.25 per piece of 12 yards.

HONEY-TUMBLERS ADVANCED.

Owing to the failure of natural gas for use in the glass-factories of Pittsburg and vicinity, the makers are obliged to advance the price, owing to the increased cost of production. The only change for the present will be on Nos. 788 and 789 tumblers, listed, page 30 of Jan. 1st catalogue. The price by the barrel will be $5.50 instead of $5.00; and for the nested, $9.70 instead of $8.70. The middle sheet of the price list was printed before we received notice of this advance.

EAGLE AUTOMATIC INDELIBLE PENCIL FOR A DIME.

We have for years been selling the Eagle automatic indelible pencil at 20c. We recently got track of a job lot of the latest style of these pencils with stop-gauge, and we bought them so low we are able to furnish them for 10c each; by mail, 2c extra. This stop gauge prevents the lead from falling out any further than you want it to write with, and the lead can be exposed for use with one hand, without the necessity of dropping it on to the other hand or on to the table, to prevent its falling out.

EARLY-ORDER DISCOUNT.

With this date the discount for early orders drops to 3 per cent. All orders received this month for goods listed on pages 10 to 29 of our new price list will be entitled to a cash discount of 3 per cent. You will have received, before you get this number, our new price list for 1892. Send in your order early, that you may have the goods made up ready for the bees when they are ready for them. Notice what Dr. Miller says in "Stray Straws," Dec. 15th number, about ordering early. It is greatly to your advantage and profit, and it greatly assists us in taking care of orders promptly in the busy season.

WINTER CARE OF HORSES AND CATTLE.

This is the title of one of our rural books written by T. B. Terry, one of our most popular and practical agricultural writers. Every one who has the care of live stock will find profit in the perusal of this little work from his hand. It is especially valuable at this season of the year when you can put its hints into practice and have the time to read it during the long winter evenings. We have made the price uniform with our other rural books—35 cts. with other goods; by mail, postpaid, 38 cts. A copy is given free for one new subscriber for GLEANINGS, with $1.00.

MAPLE SUGAR AND THE SUGAR-BUSH.

The time is near at hand when those who have maple-trees will be actively engaged in producing maple sugar and syrup; and to do so to the best advantage you can not afford to be without this valuable work, by Prof. A. J. Cook, of Michigan. It is written from actual experience in the bush in producing syrup of the finest quality. Others as well as maple-sugar makers will be interested in reading it, as any thing from the pen of Prof. Cook could not well be otherwise than interesting and profitable reading. Price 35 cts.; by mail, postpaid, 38 cts. It is given free for one new subscriber to GLEANINGS, with $1.00.

THICK-TOP BROOD-FRAMES WITH DIVIDED TOP.

In making up thick-top frames we get on many boards a piece not wide enough for a top-bar, but which will make half of one. Two of these halves make what we call a divided top-bar, which many use and prefer. In putting the frames together, a piece of foundation can be placed between the two halves, to fasten it. Many go to the expense of having top-bars split from one end nearly through to the other for the purpose of inserting the sheet of foundation when these divided tops would answer just as well, and can be furnished much cheaper. Since we began saving the pieces as above we have an accumulation of several thousand thick-top frames with these divided tops more than we have had calls for. Our regular thick-top frames sell for $1.50 per 100; but to close these out we offer them at $1.20 per 100, or $2.75 per box of 250; 500 or more at $1.00 per 100, in the flat, without comb-guides. If you want wooden comb-guides, add 10c per 100. Most of them are packed 250 in a box

SECOND-HAND FOUNDATION-MILLS.

We have the following second-hand foundation-mills in stock that some may rather have at the price than a new one. Of course, we'd rather sell you a new machine than one of these, and think, also, that it would give better satisfaction usually; still, for those who wish to make only for their own use, or in limited quantities, one of these machines will probably do you as well as a new one. We have quite an assortment to choose from, and the list will be corrected as they are sold. The earliest orders will have the best choice.

One old-style 10-inch, our make, with round cell, for medium brood foundation; has been used very little, and is as good now as a new mill at the time this was made, although not to be compared with our present make. A new mill of this size sells for $20.00. We offer this for $12.00.

One 10-inch, which answers to the same description as above, but made later, and is a little better machine. Will sell for $14.00.

One 12-inch hexagonal cell, medium or heavy brood mill of the original Washburn make, and in excellent condition. If wax is dipped the right thickness this will make excellent foundation. I believe it originally sold for $50.00. We offer it now for $17.00.

One 12-inch Dunham round-cell heavy-brood mill. This was originally used by the Dadants, and will make good foundation yet. We offer it for $18.00.

One 12-inch Dunham round-cell heavy-brood mill, in excellent condition. We took this from E. France & Son, in exchange for a new mill to make lighter foundation more feet to the pound. Their only objection was that it made foundation heavier than they wished to use. Its condition is practically as good as new, although it makes foundation about 4 feet to the pound unless the sheets are dipped thin enough to make it lighter. We offer this for $20.00, which is two-thirds the price of a new machine this size.

If any prefer we can submit samples of foundation from any of these machines before you buy. We shall be pleased to send samples from new machines if you would rather have that kind.

1892 **ROOT'S Dovetailed Hive** **1892**
at his prices. Circular free.
1d GEO. W. COOK, Spring Hill, Kan.

OTTUMWA BEE-HIVE FACTORY.

Bee-keepers, look to your interests. Every thing in the line of bee-supplies constantly on hand.
Price list free. **GREGORY BROS. & SON,**
1-12d Ottumwa, Ia. South side.

☞In responding to this advertisement mention GLEANINGS.

WILL EXCHANGE foundation for wax or cash. Also make wax into foundation, when sent to me, at the lowest price in the world. Send for samples and prices to Jacob Wollersheim, Kaukauna, Wis.

SECTIONS.

$2.50 to $3.50 per M. Bee-Hives and Fixtures cheap. **NOVELTY CO.,**
6tfdb **Rock Falls, Illinois.**

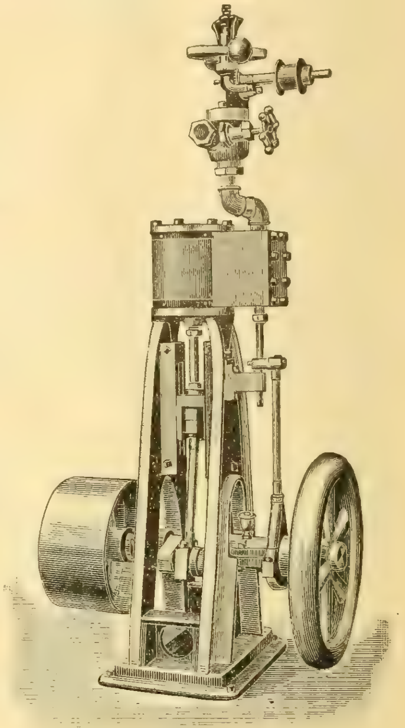
☞In responding to this advertisement mention GLEANINGS.

DOVETAILED HIVES, SIMPLICITY HIVES,

SECTIONS, EXTRACTORS, ETC.
A FULL LINE OF
BEE-KEEPERS' SUPPLIES.
60-PAGE CATALOGUE.

J. M. JENKINS, WETUMPKA, ALABAMA.

ENGINES.



Yes, we build a few. We have, in connection with our large bee-plant, a first-class, well-equipped machine-shop, in which we build all kinds of bee-hive machinery, saw-mandrels, saw-tables, dovetailing-machines, foundation-mills, extractor-gearings, etc., and, when our men have nothing else to do, engines. These are upright in style, and economize floor space. They are built under the special supervision of an expert machinist of many years' experience. The rods are all of finished steel. The cross-heads and slides are of the substantial locomotive style. The cylinders are lagged with Russia iron, and are brass-bound. The boxes are babbitted, and can be easily taken up for wear. The piston-head is provided with two expansion-rings. The bright parts shine like a dollar. The governor is a Waters, substantial and reliable. We have three of these engines running in our works. One has been running two years, with excellent results. Making them, as we do, during our dull season, they are immeasurably superior to the ordinary engines of their kind, and the price is low, considering the very fine quality of the work. Price of the 2½-horse-power engine, governor and governor-belt, all ready to attach to a boiler, $75; 5 h. p., $100; 7½ h. p., 125; 10 h. p., $150. These prices are net, although we will make the usual discount for cash. If you want a thoroughly well-made engine, you can not do better than to select one of these, providing the range of power is within what you need. While we compete in quality of workmanship we can not compete in price with some of the cheap engines on the market.

A. I. ROOT, MEDINA, OHIO.

IMPORTED QUEENS.

In May and June, each	$2.00
In July and August, each	1.80
In September and October, each	1.60

Money must be sent in advance. Safe arrival guaranteed. Queens that die en route, if returned in the letter, will be replaced by mail, postpaid. No order for less than 8 queens *by express* will be accepted.

CHAS. BIANCONCINI,
Bologna, Italy.
1-11d

Please mention this paper. 7d

TAKE NOTICE!

BEFORE placing your orders for SUPPLIES, write for prices on One-Piece Basswood Sections, Bee-Hives, Shipping-Crates, Frames, Foundation, Smokers, etc.

PAGE & KEITH,
New London, Wis.
14tfdb

In writing advertisers please mention this paper.

Syracuse, New York,

FOR ALL OF A. I. ROOT'S APIARIAN SUPPLIES.

FOUNDATION is Our Own Make.

F. A. SALISBURY.

In writing to advertisers please mention this paper. 4tfdb

CAMERAS CHEAP.

By the death of a relative, as explained in another column, I have come in possession of two very fine photographic cameras. One of them is a Hawkeye, 4x5, with a jointed tripod. It has three dry-plate holders, and three cut-film holders. Besides this, it has a lens that cost originally $35.00, with a triplex Prosch pneumatic shutter worth $10 more. The whole outfit cost originally about $75. The camera-box has been newly finished, and looks like a brand-new instrument. It will also take a roll-holder when desired. I will place my guarantee upon the instrument as being first-class in every respect. It has a far better lens than the average Hawkeye camera. Samples of the work will be mailed upon application. Desiring to give immediate returns to the family of the deceased, I offer this camera for $35 cash. It is a bargain for some one who desires something really fine in this line. Speak quick if you want it, as it will probably be snapped up. I would, under no circumstances, let it go; but, as I have already said, I have two or three other good cameras of my own.

A 5x8 PHOTOGRAPHIC CAMERA CHEAP.

From the same source I also have a 5x8 sliding-front swing-back revolving-back camera. It has no lens. It has three dry-plate holders, tripod, carrying-case, and focusing-cloth. Its original cost was about $25. As it is second-hand, I will dispose of it for an even $10. A good lens for it can be bought for about $4.50; or for $14.50 I will include the lens. **E. R. ROOT, MEDINA, O.**

A.W.L.
LIVINGSTON'S TOMATOES

"THE BEST" Everybody Admits.
OUR OTHER SEEDS ARE EQUALLY AS RELIABLE
Seed Annual Free, Write For it NOW!
**A.W. LIVINGSTON'S SONS,
BOX 273, COLUMBUS, OHIO.**

☞In responding to this advertisement mention GLEANINGS.

HALF A MILLION

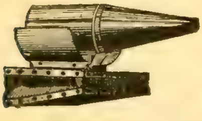
Sections, 350 Colonies of bees, etc. *Must be sold*, at bottom prices. Send for price list to
E. T. FLANAGAN, Box 783, Belleville, Ill.
1-12db Please mention this paper.

WILL EXCHANGE foundation for wax or cash. Also make wax into foundation, when sent to me, at the lowest price in the world. Send for samples and prices to Jacob Wollersheim, Kaukauna, Wis.

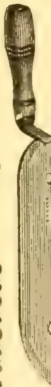
SECTIONS.

$2.50 to $3.50 per M. Bee-Hives and Fixtures cheap.
NOVELTY CO.,
6tfdb **Rock Falls, Illinois.**
☞In responding to this advertisement mention GLEANINGS

BEST ON EARTH



ELEVEN YEARS WITHOUT A PARALLEL, AND THE STANDARD IN EVERY CIVILIZED COUNTRY.



Bingham & Hetherington
Patent Uncapping-Knife,
Standard Size.
Bingham's Patent Smokers,
Six Sizes and Prices.

Doctor Smoker,	3½	in., postpaid	$2.00
Conqueror "	3	" "	1.75
Large "	2½	" "	1.50
Extra (wide shield)	2	" "	1.25
Plain (narrow ")	2	" "	1.00
Little Wonder,	1¾	" "	65
Uncapping Knife			1.15

Sent promptly on receipt of price. To sell again, send for dozen and half-dozen rates.

Milledgeville, Ill., March 8, 1890.
SIRS:—Smokers received to-day, and count correctly. Am ready for orders. If others feel as I do your trade will boom. Truly, F. A. SNELL.

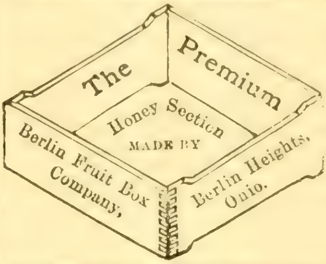
Vermillion, S. Dak., Feb. 17, 1890.
SIRS:—I consider your smokers the best made for any purpose. I have had 15 years' experience with 300 or 400 swarms of bees, and know whereof I speak.
Very truly, R. A. MORGAN.

Sarahsville, Ohio, March 12, 1890.
SIRS:—The smoker I have has done good service since 1883. Yours truly, DANIEL BROTHERS.

Send for descriptive circular and testimonials to
1tfdb BINGHAM & HETHERINGTON, Abronia, Mich.
☞In responding to this advertisement mention GLEANINGS

TEXAS.

Friends, I have some fine tested queens. I will sell as they come at $1.25, March and April. I do this to get my 4-frame nuclei queenless. Untested, March, April, and May, $1.00 each; six, $5.00; after, 75c each; six, $4.20, or $8.00 per dozen. Discount on larger orders. Contracts made to furnish certain number weekly. The above are the three-banded Italians. I also breed the five banded strains at above price except tested, of which I will have none till April 15th. A few fine breeders, either race, $5.00. I have changed my postoffice from Farmersville, Texas, to Floyd. Money-order office, Greenville.
JENNIE ATCHLEY,
1tfdb **FLOYD, HUNT CO., TEXAS.**
☞In responding to this advertisement mention GLEANINGS.



Send for our new price list of Bee-supplies and Fruit packages. A liberal discount allowed on winter orders. Address
BERLIN FRUIT BOX CO.,
Berlin Heights
Erie Co.,
Ohio.
1-6db
☞In responding to this advertisement mention GLEANINGS.

SOUTHERN BEE-KEEPERS,

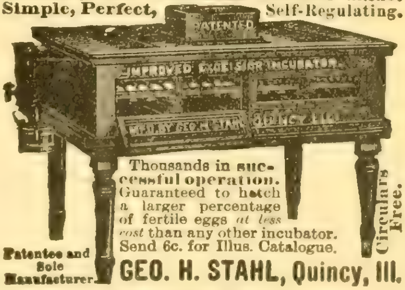
Our location enables us to furnish you with supplies at 50 per cent less freight rates than any other house in the country. Send for circular.
I. J. STRINGHAM, 92 BARCLAY ST., N. Y.
Please mention this paper. 1tfdb

1892 Improve your stock! Get the best! Beautiful yellow Italian Queens from stock bred for business, as well as beauty. Orders booked now. 1648 queens sold, and never heard of but two mismated. Will be ready to begin shipping by May 1st. Warranted queen, $1.00; 6 for $4.50. **W. H. LAWS, Lavaca, Ark.** 1-2d

Bee - Keepers' ❋ Supplies.

We are prepared to furnish bee-keepers with supplies promptly and at lowest rates. Estimates gladly furnished, and correspondence solicited. Our goods are all first-class in quality and workmanship. *Catalogue sent free.* Reference, First National Bank, Sterling, Ill. Address 1-24db
**WM. McCUNE & CO.,
Sterling, Illinois.**
☞In responding to this advertisement mention GLEANINGS.

HATCH CHICKENS BY STEAM!
IMPROVED EXCELSIOR INCUBATOR
WILL DO IT.
Lowest-priced First-class Hatcher made.
Simple, Perfect, Self-Regulating.



Thousands in successful operation. Guaranteed to hatch a larger percentage of fertile eggs *at less cost* than any other incubator. Send 6c. for Illus. Catalogue.
Patentee and Sole Manufacturer. **GEO. H. STAHL, Quincy, Ill.**
Please mention this paper.

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FOR SALE, 13 Colonies of Italian Bees, 4 in Langstroth, 1 Simplicity, 10 Dovetailed hives, with T supers, section holders, 300 sections, every thing complete, $40.
HENRY WINGERT, Loveland, Ohio.

"GRAPE CULTURE." A treatise on Grape culture, by W. E. Gould. Postpaid 25c. W. E. GOULD, VILLA RIDGE, ILL.

BOARD SIGNS AT A LOW PRICE.

We have just made a purchase of about 5000 board and cloth signs. Four of the board signs are as follows:

HONEY FOR SALE.

BEE-KEEPERS' SUPPLIES FOR SALE.

FOR RENT.

NO HUNTING OR SHOOTING ALLOWED ON THIS FARM.

They are 6 in. by 2 feet, neatly printed in black on smooth white painted boards. Price is 10 cts. each; or by mail, 25 cts. In quantities not prepaid, we will sell 3 for 25c; 6 for 40c; 12 for 75c, or a bunch of 25 for $1.25, all of one kind. We will furnish them, assorted kinds, as follows: 6 for 50c; 12 for 90c; 25 for $1.50.

We have, besides the three old signs, "Honey for Sale," "Bees and Queens for Sale," and "This Property for Sale," 4½x18 inches, and a sign—"This Property for Sale," 6x36 inches, all at 10c each; 80c for 10. All but the last is mailable at 6c extra.

A. I. Root, Medina, O.

DO YOU KNOW

that your success in securing a good crop depends almost entirely on the queen? Then **WHY** tolerate old worn-out queens, at a loss of $3 to $5 per colony in honey each year, when you can buy young, vigorous queens, of the best strain Leather-back Italians, during March and April, at $12.00 per dozen, $1.25 each? Ten per cent discount on orders booked 30 days in advance.

A. F. BROWN,
HUNTINGTON, PUTNAM CO., FLA.
Agent Southern Express Co.

Send for Price List to
R. E. HARBAUGH,
Manuf'r and Dealer in Bee-Keepers' Supplies.
Breeder of Italian and Carniolan Bees and Queens, Light and Dark Colored Ferrets.
25th and Clay Sts., - - - *St. Joseph, Mo.*

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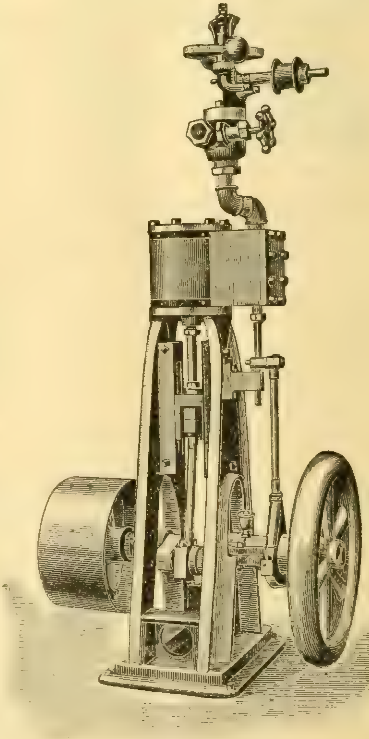
26 COLONIES Black Bees in a pattern of Simplicity hive, for $100.
J. M. OVENSHIRE, D. D. S., Dundee, Yates Co., N.Y.

ENGINES.



Yes, we build a few. We have, in connection with our large bee-plant, a first-class, well-equipped machine-shop, in which we build all kinds of bee-hive machinery, saw-mandrels, saw-tables, dovetailing-machines, foundation-mills, extractor-gearings, etc., and, when our men have nothing else to do, engines. These are upright in style, and economize floor space. They are built under the special supervision of an expert machinist of many years' experience. The rods are all of finished steel. The cross-heads and slides are of the substantial locomotive style. The cylinders are lagged with Russia iron, and are brass-bound. The boxes are babbitted, and can be easily taken up for wear. The piston-head is provided with two expansion-rings. The bright parts shine like a dollar. The governor is a Waters, substantial and reliable. We have three of these engines running in our works. One has been running two years, with excellent results. Making them, as we do, during our dull season, they are immeasurably superior to the ordinary engines of their kind, and the price is low, considering the very fine quality of the work. Price of the 2½-horse-power engine, governor and governor-belt, all ready to attach to a boiler, $75; 5 h. p., $100; 7½ h. p., $125; 10 h. p., $150. These prices are net, although we will make the usual discount for cash. If you want a thoroughly well-made engine, you can not do better than to select one of these. While we compete in quality of workmanship we can not compete in price with some of the cheap engines on the market. These engines are also connected with boilers. Write for prices.

A. I. ROOT, MEDINA, OHIO.

HONEY COLUMN.

CITY MARKETS.

MINNEAPOLIS.—*Honey.* The demand for white honey in this market is good at 18c; dark honey is slow sale at 12@13; while there is very little demand for extracted honey at 8c. There has not been a time this season when the market here has been overstocked with fancy white honey, and, in fact, as a rule, any thing desirable in the line of fancy stock is usually shipped to Chicago or other eastern markets, which is something we can not account for, as we have watched the different markets, and our market has been from 1c to 2c higher than the eastern or southern markets all the season.

Beeswax is scarcely called for at 25c.

J. A. SHEA & CO.,
Jan. 6. Minneapolis, Minn.

CINCINNATI.—*Honey.* There is no change in the honey-market. While demand is good for family use, demand from manufacturers is slower than we ever knew it to be. Cheap sugar, no doubt, is an important factor in this connection. We quote: 14@16 for best comb in the jobbing way; 5@8 for extracted on arrival.

Beeswax is in good demand, at 23@25 for good to choice yellow on arrival. Arrivals are good.

CHAS. F. MUTH & SON.
Jan. 11. Cincinnati, O.

KANSAS CITY.—*Honey.*—Demand poor. Supply large of comb, 1-lb. fancy white, 15; dark, 12. Extracted, light demand, supply light, white, 7@7½; dark, 5@6. *Beeswax*, none on the market; weather cold with light trade. HAMBLIN & BEARSS,
Dec. 21. 514 Walnut St., Kansas City, Mo.

DETROIT. *Honey.*—Comb honey continues to sell at last quotations; viz., 12@14c. Extracted, 7@8c. *Beeswax*, 26@27. M. H. HUNT,
Jan. 9. Bell Branch, Mich.

KANSAS CITY.—*Honey.*—Honey is moving rather slow. Supply ample. White comb, 14@15; dark, 9@12. Extracted, white, 7½; dark, 5@6. *Beeswax*, light supply, and demand at 23@26.

CLEMONS, MASON & CO.,
Jan. 11. Kansas City, Mo.

CHICAGO.—*Honey.*—Fancy white comb honey selling at 16; other grades, 10@14. Extracted, slow demand 6½@7½. *Beeswax*, 26.

S. T. FISH & CO.,
Jan. 7. 189 So. Water St., Chicago, Ill.

BOSTON.—*Honey.*—One-pound comb, 13@15; no 2-lb. on hand. Extracted, 7@8c. *Beeswax*, none on hand. Demand light, and supply ample.

BLAKE & RIPLEY,
Jan. 11. Boston, Mass.

CHICAGO.—*Honey.*—Honey selling fairly well for season of year, at 15@16 for white comb. Dark sells slowly, and prices are not certain, but range from 12@13. Extracted, without special change, brings 6@7@8. *Beeswax*, 27. R. A. BURNETT,
Jan. 8. 161 So. Water St., Chicago, Ill.

ST. LOUIS.—*Honey.* No change to note; inquiries light; sales few. *Beeswax*, prime, 24½.

D. G. TUTT GRO. CO.,
Jan. 9. St. Louis, Mo.

PHILADELPHIA. *Honey.*—Dull; 14@15. *Beeswax*, yellow choice, 24@25. SHOEMAKER & SCHULTZ,
Jan. 11. No. 30 S. Water St., Philadelphia, Pa.

FOR SALE.—6000 lbs. extracted honey, in 60-lb. cans.
C. H. STORDOCK, Durand, Winnebago Co., Ill.

FOR SALE CHEAP.—10 bbls. extracted honey mixed with honey-dew. Quality good. Will sell in any quantity desired. Price on application. Sample sent for a two-cent stamp.
EMIL J. BAXTER, Nauvoo, Hancock Co., Ill.

FOR SALE.—Extracted honey, basswood, mesquite, alfalfa, sage, and other varieties. Lowest prices. Correspond with us. 22-2db
S. T. FISH & CO., 189 So. Water St., Chicago, Ill.

Wants or Exchange Department.

Notices will be inserted under this head at one half our usual rates. All advertisements intended for this department must not exceed five lines, and you must SAY you want your adv't in this department, or we will not be responsible for errors. You can have the notice as many lines as you please, but all over five lines will cost you according to our regular rates. This department is intended only for bona fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—A good Christian housekeeper without incumbrance, to keep house for a family of three adult persons. 22-23d
J. L. CLARK, Apalachicola, Franklin Co., Fla.

WANTED.—To exchange for honey or offers, Victor Safety bicycle, in No. 1 condition, Barnes foot-power saw, Stanley automatic honey extractor, new; No. 5 Novice extractor, 4¼x5½ photographic outfit; queens, to be sent next season.
24tfdb J. A. GREEN, Dayton, Ill.

WANTED.—To exchange pure Scotch collie pups for any thing useful on farm or in bee-yard.
N. A. KNAPP, Rochester, Lorain Co., O.

WANTED.—Extracted honey, etc. Have Dovetailed hives, printing, large lot of electrotypes, nice lot of apple trees, seeds, etc., to offer in exchange. CHRISTIAN WECKESSER.
1-2d Niagara Falls, N. Y.

WANTED.—A buyer for a 6 h. p. "Monarch" engine, with 12 h. p. boiler, nearly new. A bargain for somebody. For description and price address 1-2d J. W. BUCHANAN & BRO., Eldora, Ia.

A SUPPLY DEALER wants prices on sections, foundation, and smokers. W. H. PUTNAM, 1tfdb
River Falls, Pierce Co., Wis.

WANTED.—To exchange fruit trees for section boxes. JAS. HALLENBECK, Altamont, N. Y.

FOR EXCHANGE.—100 Squash boxes, painted, made at the Home of the Honey-Bees. Wanted, Cotswold and Shropshire ewes. Address
1-2d CEDAR GROVE FARM, North Madison, Ind.

WANTED.—A young man to work in an apiary; either an experienced man or one with some experience. State experience, and wages wanted.
Address APIARIST, Brownstown, Wis. P. O. box 26.

WANTED.—To exchange blackberry, raspberry, and strawberry plants, for books on bees, farming, stock, poultry, and garden, or for tested queens, wax, or offers. C. B. JACKSON,
2d Eau Claire, Eau Claire Co., Wis.

WANTED.—Bee-keepers to have choice white-clover comb honey stored in various sizes of fancy styles of glass jars this next season. For particulars write J. B. KLINE, Sec'y
2d Chicago Bee-keepers' Supply Co., Topeka, Kan.

WANTED.—60 colonies of bees, for magic-lantern, 369 pictures; picture 12 ft. diameter; World type-writer. Correspondence invited. 2d
JAS. M. SMITH, Perkiomenville, Montg. Co., Pa.

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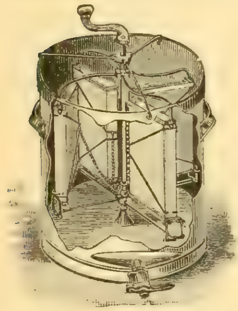

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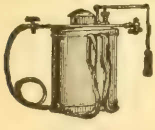

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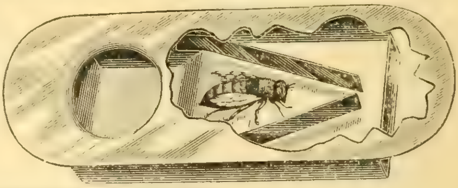

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ILLUSTRATED SEMI-MONTHLY
PUBLISHED BY A. I. ROOT.
$1.00 PER YEAR MEDINA OHIO

Vol. XX. JANUARY 15, 1892. No. 2.

GRADING HONEY.

J. A. GREEN PROPOSES ANOTHER SYSTEM.

I must say that I am not at all satisfied with either of the systems of grading comb honey that have been proposed. That adopted at the Northwestern convention was rather too exacting in some of its requirements, and in some respects was incomplete. I think this would be admitted by a good share of those who voted for it. At best, it was a compromise adopted with the expectation that it would be further revised before being accepted as a uniform system of grading. But while it placed the standard too high, I think the system adopted at the North American convention went to the other extreme. Any bee-keeper who is up to the times in the production of comb honey can readily select, after a good yield from white clover, linden, or any other source of white honey, a large proportion of sections that are almost, if not quite perfect in every respect—such honey, in fact, as would be graded No. 1 according to the Northwestern scale. It pays to have such a grade; and any one who understands selling honey can readily get a fancy price for it. With this grade added I would not have much fault to find with the Albany system of grading.

There are excellent reasons for the establishment of a superfine grade of honey, and there are also good reasons for using names or letters, instead of numbers, to indicate the grades, though I have always used numbers for all but the best, which I call "extra select," following with numbers 1, 2, and 3. My system of grading might be formulated about as follows, using letters advocated by the Albany committee:

EXTRA SELECT.

Light-colored honey, of good flavor; combs straight, well built out, of even thickness, and nearly uniform weight, attached to the section on all sides; all cells sealed, with white cappings, and with both comb and sections unsoiled by travel-stain or otherwise.

"A" GRADE.

Light-colored honey, of good flavor; combs straight and well built out, with cappings white, or but slightly amber-colored; one face of each comb perfect in appearance, fully sealed, except the line of cells touching the wood. The other side shall be perfect in color and sealing, or nearly so, and section not badly soiled.

"C" GRADE.

Honey of good quality. In this grade shall be placed all irregular combs, or those containing pollen, and all in which the capping is dark or considerably soiled. Sections must be nearly filled, with few or no unsealed cells.

"M" GRADE.

In this grade shall be placed all honey of inferior quality, all combs containing much pollen, or badly travel-stained, or otherwise objectionable. Sections must be at least three-fourths full, with one side well sealed.

The above is *my* system of grading—what I use in actual practice. I do not expect that it will satisfy everybody. In fact, I think we shall find it hard to establish any system that will be satisfactory in all parts of our country. This is evident when we see that the eastern men want the saffron-colored comb of the Mississippi bottoms placed in the third grade, while the men who produce it insisted at Chicago that it ought to be graded No. 1. The eastern men, too, want buckwheat honey graded by itself, though they do not seem to care about other kinds. I believe there is but little buckwheat honey produced in the West, though there are other kinds that deserve to be graded by themselves quite as much as buckwheat. As buckwheat honey is well known to the trade, it might be well enough to keep it in a grade by itself, though no doubt much honey is sold as buckwheat that was never near a buckwheat-field. But if we decide that there may be a first, second, and third grade of each kind of honey, as was voted at Chicago, we do away with one of the principal objects of grading, and open the way to almost as many disputes and differences of opinion as were possible under the old system—or lack of it.

It will be difficult to make some bee-keepers understand why their first-class honey, gathered from autumn wild flowers, should bring a lower price than another man's second or third class clover, although the commission man understands it perfectly. Would it not be better to put it in the second or third grade on the start, and so class it? Again, it is undesirable that the selling value of comb honey depend more upon its appearance than any other one quality—provided, of course, it has not an actually disagreeable taste. The kinds of honey are legion. Unless a man is familiar with all these varieties, which is something hardly possible, how is he going to be able to make a guess at the value of honey offered him from another locality? Even if he is familiar with the kind of honey offered, there is much chance for misunderstanding, for the average bee-keeper is very much at sea with regard to the sources from which his honey was gathered. Moreover, there are very few localities where any one variety of honey may be secured free from admixture. The varying nature of this admixture so changes the character of the honey, that what passes for white-clover honey in one locality may be a very different article from the white-clover honey of somewhere else.

If honey is graded according to my rules, and a sample of the honey sent in a small vial by mail, the purchaser may know just what to expect, or the commission man will be better able to inform the intending shipper what his honey will bring. J. A. GREEN.

Dayton, Ill., Jan. 8.

[See editorial comment elsewhere in this issue.]

PRESIDENT'S ADDRESS.

READ AT THE NORTH AMERICAN BEE-KEEPERS' CONVENTION, AT ALBANY, N. Y.

The labors and experiences of another season are ended, and its lessons largely learned. A bee-keeper of my acquaintance devotes this part of the year to a careful comparison of the main points in the season's experience with those of previous years. The facts are then still fresh in mind, and the conclusions are useful. In proof that he is eminently successful in his business, I might mention his name but for fear of his modest presence with us. So we, in convention assembled, may compare our varied experiences during the season just closed, and, on doubtful points, gather wisdom more rapidly and cheaply than to work it out in our own bee-yards.

With so large a crop in one part of our country that the markets are surfeited, while much of the remaining portion is begging for choice comb honey, it may be that we shall learn a useful lesson on the distribution of our products. What are the hindrances to a better distribution of honey?

1. Our method of marketing, which hurries it off to market without waiting to learn where it is needed.

2. Freight rates are too high, and, what is worse, honey is handled carelessly by railroad men, making it difficult to reach distant markets.

After signing a release and loading and unloading his own honey, the bee-keeper is charged double the rates he ought to pay, by these servants of the people.

A recent ruling, which compelled the shipper to cover the glass, that has been used for a score of years, chiefly to secure more careful handling, is a fair sample of the treatment we receive.

This association should vigorously protest against this unwarranted interference with our rights, and a committee should be appointed to work diligently until reduced rates and better treatment are secured. We have had such a committee in our State Association, but we need a united effort throughout the country.

3. Lack of uniformity of packages and grading is a barrier to a proper distribution. What is accepted in one market is not in another. Put up the honey to meet the demands of the markets to which it is sent, has been the advice. This sounds too much like the cry of the sensational or Sunday newspaper man, who says, "We publish what the people demand," and the paper gets down lower and lower all the time. The people are often not the best judges of their needs, and often have to be educated.

Starting with the two-pound box, glassed, we have successfully met and catered to the demand for one-pound sections, glassed and unglassed, full weights and light weights, paper cartons and pasteboard boxes, wood and mica sides, thick (2-inch) boxes and thin boxes, 1⅞, 1¾ down to 1½-inch, square boxes and tall boxes, until there is the greatest diversity in packages, and it is difficult for a dealer to duplicate an order for any quality unless it is from the same consignment. The producer has wasted his substance in continual changes, and, like the sensational editor, has been but a puppet to a senseless demand.

We should adopt a stand; and if glassed honey looks better, carries better, and keeps better, why not gradually enlarge the production of this kind, and, if possible, educate the consumer to buy honey in the standard box, or "section"?

I have this year had calls for glassed honey from the West, and yearly the demand for this kind is increasing in the East.

In the reduction of duty on sugar, no bee-keeper, to my knowledge, was consulted; and fearing that, in the contemplated treaty with Spain, we might again be overlooked, I thought it my duty, as an elected representative of the bee-keeping interests of this country, to address a protest early in the year to the State Department against the free admission of honey from Cuba. A copy of the letter is here appended:

STARKVILLE, May 14, 1891.

Hon. James G. Blaine, State Department, Washington, D. C.

MR. SECRETARY:—Information reaches me that this country and Spain will probably agree upon a treaty of reciprocity. With such probabilities ahead, I desire to be informed, as representative of the bee-keeping industry, whether honey is upon the free list. If so, I wish at this early day to enter an emphatic protest against any change in the tariff.

The contemplated removal of the duty on honey in the Spanish-American treaty a few years since was met by a most emphatic protest from the 300,000 bee-keepers of the United States of America. Much better reason have they now for protesting, since the great reduction in the price of cane sugar, the chief competitor of liquid or strained honey.

The removal of the duty on foreign sugar was followed by a bounty to our domestic sugar-producers, even to the producers of maple sugar, which is chiefly an article of luxury and not a competitor of cane sugar in the manufacture as is "strained" honey. Our legislators who so kindly remembered the sugar-growers, entirely forgot the honey-producers, whose product is but sugar under another name. In the manufacture of certain products, honey is superior to sugar, although not so much superior but that we shall have to lower present prices in many cases to avoid the substitution of the inferior and cheaper article.

Now, to permit Cuban honey to enter free, and still further reduce prices, would be an act of injustice that could hardly be forgiven. In fact, it is questionable whether our industry could survive, unless it should be that limited branch of it devoted to the production of comb and liquid honey for table use. Cuba is probably the finest honey-producing country in the world, and capable of producing an immense amount of honey. So superior is it in this respect that several of our most intelligent bee-keepers have left all the advantages of their native land to engage in the production of honey there.

Our industry is still in its infancy; and while we already produce many million pounds of honey, it is capable of an expansion so great as to wholly eclipse the present production of sugar from the sugar-cane. Four contiguous counties have produced in one season over four million pounds of honey, and this represents but a fractional part of what might have been gathered.

Knowing well the genuine interest you take in the welfare of the people of your country, I am confident that you will give this subject the attention its importance deserves. Should there be any points on which you desire additional information, command me at your pleasure.

Yours, etc., P. H. ELWOOD.

President of the North American Bee-Keepers' Association, also President of the United States Honey-Producers' Exchange, and President of New York Bee-Keepers' Association.

The letter I received in reply is not at hand, but it stated that the subject should have the attention its importance seemed to demand. I am glad to say that the treaty makes no change in the present duty.

As the hand of our legislators has once been laid heavily upon us, and may be again, I suggest that a standing "watch-dog" committee on legislation be appointed. Also, if you think best, this committee may be authorized to draft a bill regulating the use of arsenical poisons on fruits and vegetables, by spraying and other processes. That bill should be in suitable form for submission to the several State Legislatures.

The Committee on Medals have completed their labors, suitable dies have been obtained, and medals stamped for distribution to affiliated societies, as called for in the constitution. Much credit is due to Mr. Thomas G. Newman, who worked on this committee with his usual vigor and ability. A few extra medals to be awarded for meritorious inventions, discoveries, and experiments, would help our society and pursuit.

The original experiments made by Professor Cook on "Fertilization by the Honey-bee," read at Washington, is worthy of a medal; but probably our awards should be conditioned on having the report first made to this society. I hope Professor Cook has continued his experiments so as to include buckwheat, as farmers have but little idea of the great benefit to be derived from the honey-bee in the fertilization of this grain.

A medal should be offered for the best essay for general distribution on "The Use of Honey in the Arts and Manufactures." When we know that a single firm of bakers within a few months bought $13,000 worth of honey to use in their business, we are led to believe that its use might be largely extended.

Manufacturers have learned that certain chemical processes take place with honey that do not with sugar.

In medicine, honey might often be substituted for syrup, to the benefit of the patient, as it is more easily digested, and in lung and throat diseases it is a valuable medicine.

Formerly it was the custom of our secretaries to prepare a copy of our proceedings for the press, or a copy from which reporters could make extracts. I advise that we return to this custom. Reporters are not familiar with bee-keeping; and while we sometimes have excellent reports, usually those published in our dailies are not creditable to either the bee-men or to the papers that publish them. I therefore ask that our secretary furnish a report for the press.

We are pleased to have with us in this meeting many representative bee-keepers who have not met with us heretofore. Mr. Frank Benton, who has nearly compassed the world in search of new varieties of bees, and to whom bee-keepers are under lasting obligations, has promised to be here.

One whom we have been accustomed to meet at our State Conventions is not here. Mr. G. H. Ashby, whom we held in high esteem for his superior qualities of head and heart, will be sadly missed on the floor of this convention.

P. H. ELWOOD.

WHAT IS HIBERNATION ?

THE BEST TEMPERATURE FOR BEE-CELLARS.

A correspondent writes, "At what temperature should bees be kept so that they will hibernate ?"

Well, that depends on what is meant by "hibernate." If that word is to be so turned from its legitimate meaning that it means getting quiet, then experience, in my case, proves that a temperature of about 42 to 46 is as near as I can come to it. If it means a sinking into that torpid state into which ants, wasps, woodchucks, and such like things go, then if such a state were possible with the bees, which I can not accept, they would require a very low temperature, and said low temperature would not only be required outside of the cluster, but the same or nearly so would obtain inside of the cluster also. That I never found the temperature lower than 60° inside of any cluster of bees, in all my experiments to ascertain the temperature of the cluster of bees in winter, even where the temperature was as low as 16° below zero outside, proves conclusively to my mind that bees never hibernate in the true sense of the word. Ants, wasps, and hornets, freeze up solid, and often stay so for months at a time, in which case they can be truly said to be hibernating; but all know that, if any colony of bees ever come to this point, even for a single day, they would never revive with the warming breath of spring.

This correspondent next asks, "Is it advisable to keep them at such a temperature that they will hibernate?" In the above he will see that, if true hibernation is meant, only loss can occur if the bees do hibernate, even if for only a short time. But if he means a state of quietude instead of hibernation, then I should say that it is advisable. The more quiet bees can be kept during winter, the better; and I find that the temperature as above given is the one in which bees are the most quiet; but under conditions different from those existing with me, a temperature varying from this might be the best. Actual observation in any case will be found of far greater value then set rules from a different locality. Try for yourself; and when you have found the temperature in which your bees are the most quiet, then stick to that till experience points out something better. Seasons sometimes vary, and you may find that the temperature of a previous winter will not work equally well the next. One thing is always to be borne in mind, which is, that bees are inclined toward a dormant state in the fall, and toward an active state in the spring. Bees go into a state of rest in October, and remain more or less in this condition, in any temperature varying from 65° above to 30 below zero, until interrupted by some disturbance, or aroused to activity by the commencement of brood-bearing, which occurs anywhere from the first of January to the first of April, in all well-regulated colonies, according to the climate they are in. After brood-bearing has commenced, more or less uneasiness will prevail from this time until the bees have the benefit of warm weather and frequent flights. A mild temperature in preserving animal vitality is to be desired, and a uniform temperature is the most congenial, the disturbance of sudden changes being avoided as much as possible.

That the reader may know a little more explicitly regarding the matter, I will say that, where a colony is wintering just as I should like, they will not be disturbed at once by the rays of light from a candle or lamp falling upon them. When I go into my bee-cellar and hold the candle so the rays of light fall upon the cluster where the bees are to be seen at the bottoms of the combs, all that is to be seen of the bees is a row of pointed abdomens standing out in all directions, all quiet and motionless, they remaining so for a moment or two, if no jar is made nor heat from the candle or my breath allowed to reach them. After a time, if the light is held steadily upon them, a few will begin to stir slowly, and, if held long enough, the whole colony will raise an uproar. When viewed from the top, by lifting the covering over them a few will slowly stir, perhaps putting out their stings and giving off a buzzing sound, as much as to say, "We wish you would go off and leave us." When in this condition, I consider that colony wintering splendidly. If, on the contrary, I am greeted with bees flying to the light as soon as I enter the cellar, and upon looking at the cluster at the bottom of the combs they are found all uneasy, crawling about and ready to fly at the light, with the hives full of restless bees clear to the ends of the frames at the top, I know that, unless this colony can be gotten quiet, they will prove of little or no value in the spring, if this happens as early in the season as the middle of February, while the colony will be much damaged if as late as the middle of March.

Another correspondent writes, wishing to know whether his cellar is suitable for bees, saying, "It is frost-proof, with a dry earthen floor, well ventilated, but there is usually stored in it all the vegetables used by the family, and frequently from 30 to 100 bushels of apples. Are these injurious to the bees? If not, I should like to store my bees in this cellar in years to come."

I should consider the cellar suitable for wintering bees, and the presence of the apples and vegetables no objection, if the temperature can be controlled between 42 and 48°. If the temperature can not be thus controlled, I should prefer to winter the bees on their summer stands. If I had been successful, or even comparatively so, in the past, I would go slow on the cellar, trying only a few in it the first year, putting in more and more each winter, according as I was successful. Decaying vegetables should not be allowed in any cellar, whether there are bees in it or not; and the bees should not be disturbed, by jarring or otherwise, when entering the cellar after any thing stored therein.

Borodino, N. Y. G. M. DOOLITTLE.

[Your statements quite agree with our observations, which we have been making of late.]

SUCCESS IN BEE-KEEPING.

ELEMENTS OF IT IN JULIUS HOFFMAN AND IN HIS METHODS.

In a former article we outlined Mr. Hoffman in his career as a bee-keeper. In this we shall endeavor to point out some of the reasons for his unparalleled success. When we claim his success to be without parallel, we qualify—i. e., we take into account his *uniformly* good results; his small outlay for labor; his extraordinary success in getting bees through the severe winters, and his large yields of honey per colony. Other bee-keepers produce greater quantities of honey, but require more bees; and the cost for labor, and the lack of general economy, leaves smaller net profits.

After Mr. Hoffman settled at Fort Plain it became a matter of great interest for us to visit him in his home apiary. As before stated, we discerned in him a bee-master of no small caliber.

We found in him a man of intense energy who is ever busy; a man thorougly educated in his calling, and well trained to execute his knowledge; a finished wood-worker who realizes the great importance of having hives, frames, section-cases, etc., made from good material, and exactly alike, so that no time be lost when time is exceedingly valuable. To these qualities may be added another, which requires that all work be done properly and in season.

His location was peculiarly fitted to bees in autumn and spring by reason of being sheltered from the west and north winds; and its sunny exposure contributed in no small degree to his exceptional success in wintering.

We saw the fact demonstrated, that, in properly shaped hives, packed with warm material, in a sheltered sunny position, bees become and remain strong much better than when conditions are different.

Mr. Hoffman's frame is about 13 inches deep and 11 inches wide, and 6 to 8 of these form a chamber, or nest, similar to the old-fashioned box hive, than which, when properly handled, no hive ever gave better results in wintering.

The *real* Hoffman frames, in use, confine the warmth at the top and for a considerable distance down the sides, and thus virtually make a box hive. Indeed, as Mr. Hoffman uses them they are warmer than the box hive, for the walls at the sides and tops of the frames are double, and nearly so at the ends, added to which he applies several thicknesses of burlap or sacking over and upon the sides of the frames.

There are some facts that amateurs can not learn too soon. One is, that bees naturally revel in warmth, and that for this reason they should be kept as warm as possible, during fall and spring, no matter where or how they are wintered. To accomplish this result, double walls and packing are needed through most or all of the year. This packing, in sunny weather, acts like a balance-wheel to a machine, i. e., the warmth accumulated during the day goes far through the night; and at all times, when sudden changes of temperature arise, the cluster need not expand or contract fast enough to disarrange it.

Another fact is, that ventilation of every description should be prevented at the top of the hive. Openings at or near the top carry away the warmth of the cluster, and allow the moisture to escape, both sure to work disastrously.

Mr. Hoffman understood these points some years before many of us had learned them, and profited by his application of the knowledge.

The following incident, that transpired during the seventies, made a deep impression on the writer's mind, and, after long meditation, led to the conclusions stated as facts, in the preceding paragraphs.

We visited Mr. Hoffman during the winter, and took a look into his cellar. As we recollect, 400 or 500 colonies were placed in it, and the temperature was rather high. The hives had no projections, and were packed in double rows, several tiers deep, leaving aisles for passing between them. As placed, they were packed like bricks, and the warmth of the different colonies was communicated to the mass, making it homogeneous. The result was, not a few of the strong colonies clustered upon the outside of the hives. Indeed, upon some hives several quarts of bees were gathered. These bees were quiet—in fact, so dormant that they scarcely moved; and, when disturbed, they turned up their stings, filling the air with the odor of poison.

We did not understand the situation then, but have since concluded that their repose was due to a perfect state of health caused by good management before they went into winter quarters.

Mr. Hoffman's hive is 16¼ inches long, hence, when filled, it holds eleven or twelve frames. Except for extracting, not over eight frames are used, hence the extra space admits two followers and gives room for lateral movement of the frames. The value of the Hoffman frame for rapid manipulation depends upon this ability to separate the frames without lifting; and herein, perhaps, as much as in any one point, lies the secret of his ability to care, almost unaided, for such large numbers of bees.

We have touched hurriedly upon the causes of Mr. Hoffman's success, and may have omitted some points. If any reader desires more light, we will gladly respond if in our power. In our next we will tell something about how we apply and use the Hoffman frame.

Canajoharie, N. Y. J. H. NELLIS.

[Mr. Hoffman is one of those bee-keepers who always meet with a fair measure of success; and this success is due in no little degree to his short-cut methods, hive, and frame. The mere fact of his handling 400 or 500 colonies, practically alone, is a powerful argument for his frame. This is right in line with President Taylor's address, published elsewhere. The reason why some bee-keepers can not make the business pay is because their methods are so laborious, requiring so much hired help that the honey costs about as much as they get for it. Such bee-keepers can never make money out of the business during poor years. When they can average 50 lbs. of comb honey, or 75 to 100 lbs. of extracted, they do fairly well. The successful bee-keeper of the future is the one who will, with a small average crop of honey, (say 25 lbs.), make a fair margin of profit; and when he has a large crop he simply has a bonanza. Now, Mr. Hoffman is one who secures his crop of honey with the greatest minimum of labor, and he is bound to make some profit, even if he has only a small yield. But he generally secures pretty good yields. Perhaps some of you may think we are "puffing" Mr. Hoffman again. We have no desire to do this, but simply to call attention to *short-cut methods*. As long as we have editorial control of this journal we are going to do all we can to cry down many of the old-fashioned long, laborious methods in honey-production.]

THE MAN WHO KNOWS IT ALL.

DZIERZON AND GUNDELACH.

Dr. John Dzierzon will reach his 81st year Jan. 16th, 1892. He is enjoying good health, is engaged in keeping bees to quite an extent, and is still one of the best if not the ablest writer on apicultural matters in his native country, Germany.

The 36th German-Austrian Bee-keepers' Association met in Luebeck, Germany, Sept. 25–28, 1891. The first one of these conventions was held in the '40's, if I am not greatly mistaken; and according to Dzierzon an invitation was also extended to the (at that time) distinguished bee-keeper Gundelach. His reply, however, to Dzierzon was that he thought he could not learn any thing more in connection with bee-keeping, and therefore should not attend. How selfish and foolish the conduct of this man appears in view of the present light of apiculture—in view of the wonderful discoveries, the many highly prized inventions! But have we reached the climax? are we on the top-round of the apicultural ladder? By no means. Much may we know; but more is to be revealed in the future; and the man who "knows it all" (?) and does not try to keep himself posted by attending conventions or reading some of the best bee-periodicals exhibits as little wisdom as Gundelach 40 or 50 years ago, when he refused to meet with the best bee-keepers of his time, when bee-literature was hardly in its infancy.

Naples, N. Y., Jan. 7. F. GREINER.

THE NEW HOFFMAN FRAME.

DR. MILLER'S SUGGESTIONS AND CRITICISMS.

Before me lies GLEANINGS for Dec. 15, open at page 956, and also one of the new frames described on that page. I have been wanting to have my say about that frame for some days, but la grippe has had its heavy hand upon me. Now, however, on this bright 28th of December I begin to feel that "Richard is himself again." And how good it does seem!

But, about that frame, Mr. Editor. First, I don't see why you should call it a "modified" Hoffman. Why, you've modified the Hoffman all out of it. The soul and essence of the Hoffman is the closing-together of the top-bars at the ends along with the closing of the end-bars at the top, so that no bee can enter from above to deposit propolis. I'm not saying that you don't accomplish the same thing as with the Hoffman, but that doesn't make it a Hoffman any more than a steam-engine is a modified horse because it does the work of a horse.

But let us examine the frame itself. That it can be used in the hives already in use, is in its favor. True, to get its full benefit the peculiar tin rabbet must go with it, but it often comes handy to mix up frames in the old hives. That tin rabbet strikes me as a good thing. It gives the advantage of allowing the frames to slide along even more readily than the Hoffman.

As to the top-bar, I must say I am just a bit skeptical about ⅝ being as good for thickness as ⅞. The little experience I have had says ⅞ is more secure against burrs and braces. It is possible that, with every thing else just right, however, that ⅝ is sufficient; and if it will do, we certainly don't want any unnecessary lumber. In any case, that bead looks like a good thing. One object in having a thick top-bar is to prevent the possibility of the least sagging; and that bead will prevent the sagging of the top-bar perhaps more than the same weight of wood added to the top-bar in any other way. There are also some other advantages in having a comb-guide, that I never thought of sufficient value to make me use a loose one; but it is well enough to have them when we can have them with no extra trouble along with the other advantages. The straight end of the top-bar will not kill bees like the Hoffman, and perhaps that will more than counterbalance the advantage of warmth in winter of the Hoffman.

The end-bar varies from the Hoffman in having one side cut to a V edge. While new it will mash fewer bees; but it is a question whether it will when it has been in use some time. That V edge leaves an angle between it and the next end-bar, and an acute angle at that, giving the bees a pressing invitation to fill it with propolis, and they will be very poor hands at the glue business if they don't promptly accept the invitation. Indeed, if they are good gluers they will be likely to fill the angle on the outside of the V edge as well as on the inside. When these two angles are filled, the frame will be worse than without the V edge, for it will be much harder to move the frames, and I suspect a good many more bees will be killed than if no V edge had been cut.

The bottom-bar squints toward a radical change. You may remember that, some time ago, I suggested that, while the best form of the frame was in an unsettled state, it might be well to consider the advisability of trying the bottom-bar as used by D. A. Jones and others. But why not go the whole figure? If I remember correctly, the bottom-bar that Jones uses is only about an eighth of inch thick laterally, and perhaps ¾ inch deep. Yours contains as much or more lumber, but its width is greater than its vertical thickness. What's a bottom-bar for, any way? For one thing it keeps the lower end of the end-bars at the proper distance apart, and I'm not so sure that it has any other use. You may say that it makes the bees build the comb down to the right place; but the bottom-bar in general use does nothing of the kind. The bottom-bar is just where we should like the lower edge of the comb to be, but the bees stop building about a quarter of an inch above the bottom-bar. I have had some combs built in frames without any bottom-bars, and they were quite satisfactory. Now, if bees will build down better to a bottom-bar ½ inch wide than they will to one ⅞ wide, will they not do still better if the bottom-bar is only ⅛ wide? Would not a bottom-bar ⅛ wide and ½ deep answer every purpose? While we are at it, let's make a sure thing of having the comb built down to the bottom-bar, with no holes between comb and bottom-bar for the queen to hide in. With such a small bottom-bar, if the bees are still inclined to leave hiding-places, the foundation might come down over the upper edge of the bottom-bar and be fastened there so as to make, probably, a sure thing. If the ½x⅜ bottom-bar is retained, would it not be a good thing to cut in it a rabbet ¼x¼ to fasten the lower edge of the foundation in?

Since you've given up the Hoffman idea of keeping the bees off the rabbets, perhaps it would not be so bad a plan to cut away all of that V edge except ¼ or ½ an inch at the upper end, and the same at the lower end. Or, it might be better still to have no V edge, and then cut away enough to make bee-space between end-bars, leaving only enough at the top and three inches lower down to hold the frames at the right distance apart. I think that would kill fewer bees than the end-bars you now have.

Now, if you think I am inclined to modify too much your modified frame, just remember that I am not yet entirely free from the influence of that great modifier, the grip.

Marengo, Ill, C. C. Miller.

[It may surprise you, doctor, if we tell you that the new Hoffman frame is more a Hoffman in its real essence of working than the one we offered last year. While we have left out one feature of the original frame, that of the widening of the ends of the top-bar, we added another, that of V-ing the end-bars, which the inventor regards as very important. You seem to have the impression that this is an addition of our own. By turning to Gleanings for July 1, 1890, page 489, you will see this V edge illustrated and described by Mr. Hoffman himself. As many may not have the back number in question, we quote Mr. H.'s words: "One of the edges of the uprights or ends of the frame, as far as they are close-fitting, should be beveled off to a little less than ⅛ of an inch, so as to meet the center of the square edge of the next frame. This will prevent the gluing and the sticking-together of the frames, also squeezing of the bees to a large extent, and allow faster working of them." You see from that this V edge is not a matter of experiment, and that your fears as to the effect of the propolis are groundless in fact. It was natural for you to think as you did; so did we. We might add, further, that the V edge requires no wedging, and this is a big point.

We used something over 500 thick-top frames last season, only ⅝ inch thick; and although most of the frames were loaded with honey there were only two or three of these frames that showed sagging of the top-bars. This sagging was so slight that it could be detected only by a straight-edge, or by sighting across the top. These would not have sagged; but the grain of the wood favored it. Practically, then, there was no sagging; but to our new thick-tops we have added a comb-guide, which will be more than the equivalent of a top-bar ¾ inch thick.

The new bottom (no, it's old) has been most heartily indorsed — in fact, so has the whole frame. We may get the bottom-bar a trifle narrower—say ⅜ square; ⅛x⅜ deep we fear would be too much of a good thing.

With regard to the whole frame, a number of the Michigan bee-keepers at their State convention said, in private conversation, they were much pleased with the modified Hoffman; in fact, we never offered any bee-keeping appliance that has been so heartily indorsed by so many letters from all parts of the country, in so short a time, as the new Hoffman frame.]

OUTDOOR WINTERING.

E. FRANCE CRITICISES DR. MILLER'S PLAN, AND ALSO DESCRIBES HIS OWN METHOD.

On page 955 Dr. C. C. Miller has an article on the above subject. He asks, "What are the objections to this plan, and what improvements are suggested?"

First objection, it is too much work, as we can accomplish the same thing with less work. His fence arrangements would be sure to catch snow-drifts if there were snow to drift. His boards standing up in front of the hives would catch rain, and lead it down to the entrance of the hives, and make trouble; and his great pile of straw over the hives would get wet, and also make a harbor for rats and mice. We have been running out-apiaries several years, and we never haul bees home to winter — no need of it. If they are properly fixed they can just as well stay on their summer stands; and as most of our out-apiaries are located in pasture-grounds where cattle, sheep, horses, and hogs all have a free run, what would become of Dr. Miller's pile of straw that he puts over his hives? Of course, if he fenced around the hives he could keep the stock away, or perhaps he could fence the whole apiary; but that is too much work; and, in fact, I'd rather have the stock run among the hives, as they keep down the grass and weeds, and the stock don't do any hurt—nothing but a blind horse. Keep the blind horse away.

Now, how am I going to improve on Mr. M.'s plan? When he has his four hives in a bunch, he is very near right; but instead of having four single hives I make the four all into one hive—make the lower story all solid together, having partitions running through the hive both ways, and have a bee-entrance on each of the four sides. Then our upper stories are made single—each one rests on one division of the lower hive. We can tier them up as high as we wish. We use two tiers of single stories, making a three-story hive during the summer and working season. When we put them into winter quarters we take off the third, or upper story; select the best frames of honey—enough to fill the second story with *full* frames of honey—I don't want the bottom frames to have too much honey in them; in fact, I don't care if they are empty combs, as the bees want empty combs below the honey, to cluster in. Then as they eat the honey out of the second story they work up; so when spring arrives the bees will be in the upper story and will commence brood-rearing up there. When they commence to store honey we put the brood below and the empty combs up; and when the colony gets strong enough we give them the third set of combs. We use an eight-frame hive—that is, in a set, 24 in all—when the third story is on.

These hives are chaff-lined all around the outside, and have a gable-roofed cover deep enough to cover one set of upper stories and still give room for straw over the bees in winter. We use a $\frac{7}{8}$-inch honey-board over the bees at all times. The cover is made in halves, hinged on top, so we can turn one half of the cover on to the other half; then we can work two of the colonies, then shut down the cover and turn up the other side, which gives us a chance to work the other two colonies.

We make a stand for the hives by driving six stakes into the ground and nailing three strips of boards across from one stake to another; make all level with a spirit-level; then set the hive on. Have the stand four or five inches from the ground. If we have four good strong colonies in one of these hives, each one has a queen and eight frames *full of honey* in the second story. If the apiary is put in a place sheltered from the wind there is not a bit of danger of winter loss. I'd rather have them out than in the cellar. I have over 100 colonies in my home yard, outside, with two good cellars—one in the center of the yard, under the shop, and one at one corner of the yard under a storehouse 20x20 feet. All the use I make of the cellars is to winter a few barrels of vinegar in the shop-cellar. The cellars were both made on purpose to winter bees in; but after trying to winter some in the cellar and some out I gave up the cellars and now winter all out.

I am aware that you will object to my large hive, as it is too big and heavy to handle. There is no occasion to handle the hive at all. When it is placed on its stand let it remain, unless you want to move it to an out-apiary or sell it. In that case three or four men will load it on a wagon.

The advantages of this large hive are, the wind won't blow it over very easily; stock won't push them over; thieves won't pick one up and go off with it, as they could a small hive. Having four colonies in one bunch they receive mutual benefit from each other during the winter; help keep each other warm, enabling us to winter safely outdoors, thereby saving the trouble of housing them. With these large hives there is no necessity of hauling an out-apiary home to winter. Just leave them on their summer stands, and save all the work and worry of moving home and back again in spring. The four-colony hive is just as good for comb honey as a single hive.

If any one has any questions to ask about these hives, sail in; I am here.

Platteville, Wis., Jan. 1. E. FRANCE.

[We have no doubt that your tenement hives work very nicely. We had one for a few years, but abandoned it finally. The only objection to them for out-apiaries is, that most of our out-yard locations are not permanent enough in their honey-flows. This is especially true in certain portions of York State, and in other localities where basswood is being cut off. As we have before explained, the inroads of civilization, large wheat-fields, and the raising of other agricultural crops, cut off clover, the original source of honey. With many of us, we want a hive that can be easily moved to a new location. For four or five years one location may be good, and then it happens that another one is better. Migratory bee-keeping is coming more and more in practice; and your large hives would be ill adapted to that kind of bee-keeping. We have no doubt, however, that they answer your requirements perfectly, as your locations are permanent as to their resources for honey.]

RECENT DEVELOPMENTS.

BY E. R. ROOT.

For some time back we have been convinced that the most satisfactory method of fastening starters is by the use of a heated plate, or tongue, so arranged as to pass under the strip of foundation, melting its edge. The tongue is then quickly withdrawn, allowing the foundation, with its melted edge, to come immediately in contact with the wood of the section. This principle is quite old, but we have been very slow to see its merits. We have made this application of the principle on various machines during the past summer; but up to quite recently we have been unable to construct one that could be sold for less than $2.50 retail. This figure we considered as almost prohibitory for the use of the machine. Besides, there were some other defects which we were not able to overcome entirely. During the last month we hit upon a plan for overcoming the defects of former machines, and at the same time making it so simple that it would not cost at retail more than $1.00, including the lamp and directions.

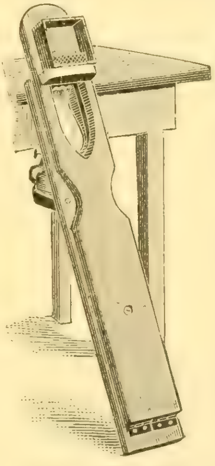


Fig. 1. THE DAISY FOUNDATION-FASTENER.

Fig. 1 shows simply two boards of unequal length, hinged together as shown in the cut. The board in the rear rests against the table at an angle, and to it is attached a lamp-shelf for holding the lamp as shown. On the top of said board is fastened a piece of steel plate, or tongue, 4 inches wide, at right angles, and long enough to project clear through a slot in the front board. The latter is made as shown, with a little shelf for holding the section. A spacing-block 3¾ square (and thick enough to center the foundation) is fastened at the right distance above the shelf, so the section can slide under it. Between the two boards is a spiral spring, and the pressure of the front board causes the two to come together at the top, making the piece of steel plate heated by the lamp below to pass under the strip of foundation resting against the spacing-block. On one side of the operator is supposed to be a pile of foundation starters; on the other side, a large empty basket for receiving sections with the starters after being attached. To put in the foundation, sit in a chair with your feet on each side of the machine. With the left hand pick up a section; set it on the little shelf, and with the right hand at the same time put a foundation starter on the spacing-block just above where the heated tongue will come through. Press slightly upon the front board or section, and this will cause the heated tongue to protrude directly under the foundation starter. Let the starter drop and come in contact with the tongue, then release the pressure, and let the foundation drop on to the section.

It will be instantly attached, and can be thrown immediately into the basket, without danger of the starter dropping out. It does not make any difference whether the day is hot or cold, or what the condition of the wax is. With this machine about 1000 starters can be put in in an hour; and it is so far ahead of any thing else we have ever seen or tried, it is with great pleasure that we present it to the bee-keeping public.

WIRING FRAMES, AND FASTENING FRAMES TO TOP-BARS.

For some time back the Dadants have told the bee-keeping public in their excellent work, the Revised Langstroth, the best and most satisfactory way of wiring frames and fastening foundation to the top-bar. The writer personally has been somewhat interested in the plan, but never "got around" to put it into execution. From the test we made last summer we were convinced that the *horizontal* wiring as described by the Dadants was the simplest, and most satisfactory in its results, of any plan we have tried, and you know we have tried a good many. We once thought that foundation would buckle or bulge out between the horizontal wires; but by observing the precaution of not drawing the wires tight—just tight enough to take up the slack, there will be no trouble with buckling, even with the thinnest foundation. Our experience, as well as that of the most practical and extensive bee-keepers who have tried it, say that it is so; and the bee-keeper who *won't* try it is not doing himself justice.

For the L. frame we place the wires 2½ inches apart. This makes three wires, the first wire being 2½ inches from the top-bar, and the bottom wire ⅝ inch from the bottom-bar. Of course, the end-bars should be pierced in the first place by your supply-dealer; but if they are not, you can do it with a brad-awl very quickly if you use a little ingenuity. The wires are imbedded in the regular way, with the foundation-imbedder. While the Carlin tool works very nicely, it is by no means equal to a spur-wheel such as is shown in the accompanying cut.

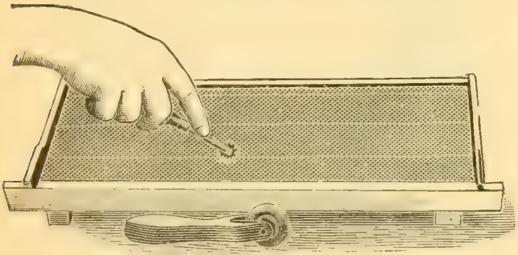


Fig. 2. IMBEDDING FOUNDATION.

The cut above shows the horizontal wiring such as we have described, and how the wire is pressed into the foundation. The special feature of this little notched-wheel tool over the other is, that you do not have to lift it up to take a "fresh bite;" and another thing, it will run clear up to the end-bars, while with the other tool you must "back up," as it were, making an extra operation. We gave our girls who imbed foundation for us the choice of the two implements. As we had only one of these wheel tools, they almost quarreled, sometimes, about it, especially when they were imbedding by *piece work.*

HOW TO FASTEN FOUNDATION TO THE TOP-BAR.

Our new top-bar, while it is a most perfect comb-guide, is especially adapted to fastening foundation.

Formerly we have rubbed the foundation on the comb-guide—an operation which, while satisfactory in its results, was too slow. We finally devised the tool after the Hambaugh device, as described in Dadant's book. As shown in Figs. 2 and 3, it is simply a wooden handle notched out to receive a wooden wheel 1½ inches in diameter. The edge of this wheel is rounding, and ¼ inch thick. The operation of fastening foundation is simply to run the wheel along the edge of the foundation against the comb-guide. A couple of "sweeps" make the fastening so perfect that the foundation will tear off before it will pull off. Another thing, it does not matter whether the wax is cold or warm; and all that is necessary is to dip the wheel into water occasionally, to prevent sticking to the foundation. This is really copied after the Hambaugh device. We hesitated to christen it by that name, as it might make confusion with a different model of the same device originally designed by "the gentleman from Illinois."

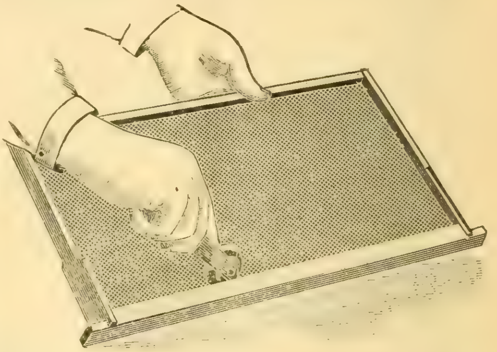


Fig. 3. FASTENING FOUNDATION TO THE NEW TOP-BAR.

IMPROVEMENTS IN EXTRACTORS.

Within the last two or three months Mr. Washburn, the foreman of the machine-shop, that expert mechanic who first perfected foundation-rolls, has been asked to turn his attention to the construction of extractors. We have had frequent complaints of the old Novice gearing being too light, and accordingly Mr. Washburn was asked to make drawings for a cast-iron arm to reach clear across the can. We further stipulated in our instructions that the gearing was to have the handle at the outer edge of the can, so that there will be as little as possible in the way of putting in and withdrawing the combs in the baskets. The following cut shows the result.

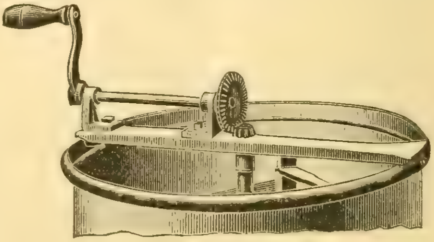


Fig. 4. THE NEW HORIZONTAL EXTRACTOR-GEARING.

This gearing, as well as the cross-arm, is old in principle; but it is new in connection with the Novice extractor. We have been corresponding, as well as asking the opinion, at conventions, of large extracted-honey men, as to the kind of gearing they preferred; and the decision has been uniformly for one like the one shown in the cut, Fig. 4. "Whatever you do," they said, "don't make your gearing too weak. Err on the side of making it too strong, if anything, even to the appearance of being clumsy." The last gear we made is strong, but not clumsy; and to appreciate the difference one has only to try the two kinds. It costs a little more, and for the present we shall have to charge a little more; and those who wish this gearing will have to specify it in their orders.

REVERSIBLE EXTRACTORS.

The one great trouble with reversible extractors has been that they are very expensive, and the can so large as to forbid their going through an ordinary door, and, in general, large and unwieldy to handle. Mr. Washburn, at our suggestion, has finally perfected a reversible two-frame machine that will go inside of a 20-inch can — that is, one of the small standard sizes of cans. Furthermore, we have dispensed with the center-shaft and the chain that is objectionable in other extractors of the kind. While the extractor is not automatic, it is next thing to it. The minute the machine stops, by twisting a couple of thumb-screws, not shown in the cut, it will reverse the comb-pockets in the fraction of a second, and the machine set a-spinning, with the other surfaces of the combs exposed to the can. We have tested the machine in actual extracting, and know that it will work. We have also sent one to be tested by some of the large honey-producers of York State, and we are at present awaiting suggestions and criticisms. This is the same principle that was recommended and indorsed about two years ago, by that extensive California bee-keeper, J. F. McIntyre, of Fillmore, Cal.

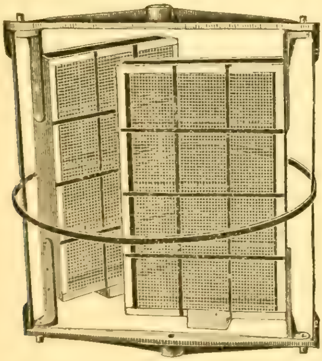


Fig. 5. THE COWAN RAPID REVERSIBLE EXTRACTOR-BASKET.

We have christened the machine the "Cowan Rapid" because it is a copy, with some of our own improvements, from a machine invented by Thomas Wm. Cowan, editor of the *British Bee Journal*. The cut shows how the baskets are hinged on the opposite sides of the frame. A couple of convenient *thumb-screws*, attached to the top hinges, will cause reversing to be done in as short a time as if the machine were automatic, after a little practice. The ring encompassing the frame is to stop the baskets as they reverse, and dispenses with the annoyance of hitching and catching of the chains. The whole inside of the framework is made very strong; and the fact that Mr. Washburn has supervised its construction is a guarantee to that effect. This whole extractor complete, in a japanned can, sells for little more than the non-reversing machines.

We may say here, that W. Z. Hutchinson, of the *Bee-keepers' Review*, examined it very critically when he was at our place; and he made the statement that, if he were to purchase an extractor, this would be the one he would select.

TUNISIAN OR PUNIC BEES WHICH?

ARE THEY ONE AND THE SAME?

At the November meeting of the Entomological Society, Mr. W. F. Kirby exhibited a series of a dark-colored form of *Apis* reared by Mr. J. Hewitt from bees said to be imported from Tunis. We have had an opportunity of seeing these bees, and, so far as we can judge from dried specimens, they are no other than ordinary Tunisian bees, which we have already described as being similar to those from Algeria and Morocco, and not a new species at all. Mr. Kirby stated that Mr. Hewitt proposed to call them "Punic" bees, and he stated that they were different from the ordinary Tunisian bees. We fail to see any difference, and there will be some difficulty in persuading entomologists to adopt a new name for well-known bees. We were also told that these bees would not sting, which made us smile, more especially as we remembered what Mr. Benton had said about them. Here are his own words when he wrote from Tunis, March 20, 1885, "They are also active, energetic workers, but, unlike Cyprians and Syrians, they are liable at times to fly at one and sting him when he approaches the apiary, and yet does not molest the hives."

There is a great deal we could say about Tunisian bees; about the "Kassartyr" apiary of forty hives; about a French gentleman (whose name, for obvious reasons, we at present withhold), whose apiary is not quite on the border of the Sahara desert, who exports Tunisian bees to England, and upon whom (if not in Paris), amongst other bee-keepers we intend to call when we go to Tunis for the purpose of ascertaining why Tunisian bees, which are of the same race as those of Algeria and Morocco, and, we may add, of the Balearic Islands, sometimes show yellow, which the bees of the last three places do not. Of course, we have our own theory on this matter, but we wish to verify it on the spot by personal observation. We hope, also, before long, to be able to show specimens of these bees from all the above places at a meeting of the Entomological Society, and also of the Linnean Society. We were much amused when Mr. Kirby told us that the importer wished these classified as *Apis niger*. As they are already classified as *Apis mellifica*, it is not likely that the name will be changed for Tunisian bees, which are only a variety of this species.—*British Bee-Journal*, Dec. 17, 1891.

BURR-COMBS AND WIDE TOP-BARS.

FROM ONE OF THE PIONEERS ON THE NON-BURR-COMB QUESTION.

The above topic has been discussed many times in GLEANINGS during the past two or three years; and every time I see an article on the subject I am tempted to rewrite an article I wrote a few years ago for GLEANINGS, which was refused publication, and returned for the reason (as I suppose) that the idea of wide top-bars was not *then* popular. Now that wide top-bars are popular I hardly think this article will be refused. Several years ago some one asked through GLEANINGS what was the cause of so many burr-combs in his hives; and A. I. Root replied that he could not tell; thereupon I wrote an article in answer to the question, which was, in substance, as follows:

The reason was, on account of narrow top-bars. I gave, for instance and proof, that, if our top-bars were very narrow, say ½ inch or less, that the bees would of necessity extend their cells out past them, and, as a natural consequence, would build the combs upward on each side of the top-bar, and fasten them to the section-case; therefore I argued that wide top-bars would be the remedy.

Now, it is useless to say that I am pleased to note that the narrow top-bar has proved, as I said several years ago, to be the trouble. Some lay great stress on *thick* top-bars; but I think that, after it is thick enough to prevent sagging, any greater thickness avails nothing. As to the width of the top-bar, it depends on how far the combs are spaced from center to center. If spaced 1⅜, the top-bar will do 1$\frac{1}{16}$ in. wide; but if spaced 1½, they should be not less than 1⅛ inches wide. I think the new thick top-bar, as you now make it with molded comb-guide, is a great improvement, as also your improved Hoffman frame.

It is encouraging to see the improvements that have come up in the last few years. I have often been amused to see the younger Root taking up with the improvements of the times, and breaking off from many of the appliances that the older Root has hung on to so tenaciously for these many years; but as improvements come up we *must* take advantage of them or we shall be left in the race. W. S. VANDRUFF.

Waynesburg, Pa., Jan. 4.

[Even the younger Root, while disposed to accept new things, has opposed some ideas that, afterward, he was very glad to accept. Some of us require more proof than others.]

THOS. G. NEWMAN AND DR. MILLER ON ESSAYS.

WITH A GOOD PRESIDENT THEY ARE NOT NEEDED FOR CONVENTIONS.

Essays at conventions are sometimes quite unnecessary, as they were at the late convention at Chicago. At some conventions, we know that they are not only desirable, but very necessary. Dr. Miller, in the last GLEANINGS, in his usual happy vein, writes thus on this subject:

> When Newman, of the *American Bee Journal*, changes his mind, he makes no bones of saying so. Formerly he argued that essays at a convention were essential. Now he says, in the most unreserved manner: "The Northwestern was a convention without essays, and it was a charming success. There was no want of subject-matter to discuss, and no lack of enthusiasm."

It was only the doctor's extreme modesty which prevented him from quoting the whole item. The rest of it, on page 709, reads thus: "With such a president as Dr. Miller, no essays or programs are ever needed." And that is the key to the situation.

If the president is thoroughly capable of being the program himself—if he is "full and running over" with subject-matter—if he is so well acquainted with the members as to grasp instantly their individual opinions and views, so as to call out a full discussion, by continually suggesting that Mr. So-and-so "holds a different view, and we should like to hear from him on the subject," or words to that effect—then neither program nor essay has any place in such a meeting.

President Miller is so much at home as chairman of a bee-keepers' assembly that he knows how long to carry on a discussion—in what channel to direct it, when to stop, so as not to weary the members, and has a happy manner of saying so—that he is a whole convention in himself, including essays and program.

The doctor's extreme modesty led him into this "exposure," and he must not now complain. So far as the item in GLEANINGS was concerned, it did not represent us correctly without the last sentence—and so it was necessary for us to correct it.

Dr. J. W. Vance wisely remarks thus in the Wisconsin *Farmer*, on this subject:

> The *American Bee Journal* says there were no essays read at the recent meeting of the Northwestern Bee-keepers' Association, and yet there was no lack of subject-matter for discussion, nor want of enthusiasm. The convention was an eminent success. The editor adds: "With such a president as Dr. Miller, no essays or programs are needed."
>
> I am inclined to think too many or too lengthy essays are not good for our annual meetings. Generally we have had good essays, but the greatest interest of the meeting has centered upon the dicussions, which often had to be cut short when at the most interesting point.

Essays should lead only far enough to suggest points for discussion, and in that way they are very good. But if they overpower and crowd out discussion, they are worse than useless.—*American Bee Journal*.

ABSORBENTS OR NON-ABSORBENTS FOR OUTDOOR PACKING FOR WINTER.

WHO WAS THE FIRST TO PROPOSE LETTING THE BEES SEAL THE COVERS TIGHT FOR WINTER?

Friend Root:—I have been much interested in reading your review of G. R. Pierce's book, "The Winter Problem in Bee-keeping," and your experiments along this line. I beg to call your attention to my articles in the *American Bee-keeper*, which were commenced in the *Bee World*. On page 164, *American Bee-keeper* for November, you will see that I there used almost the identical ideas you have expressed. This was before you or friend Pierce either ever made public the idea of having a board *sealed down* over the bees. Please give me credit in your next issue for being the first to publish this idea. I also said that the pollen theory cut no figure in my locality. To save you the trouble of hunting up the item I clip from the *Bee World* the same item, with the points to which I beg your attention specially marked. This article first appeared in the *Bee World* for July, 1891. Give credit to whom it is due. It was original with me.

T. K. MASSIE.

Concord Church, W. Va., Dec. 23.

We have made an extract from the article referred to in the *American Bee-keeper*, which is as follows:

> The box-hive brethren "rob" their bees in June, or early part of July. The head is then nailed on tight and daubed around with mortar. The bees also go "chinking" up the cracks and crevices on the inside with propolis, so that, by the time cold weather comes on, the hives are just about air-tight, and upward ventilation is an impossibility. The sealing of propolis is not broken in the fall to remove pollen, or for any other purpose. The bees, as previously stated, come out strong and healthy in the spring. From these facts I have drawn the conclusion that the pollen theory and upward ventilation cut no figure in the winter problem in my locality. It may be said that the box hives have the larger entrance, and therefore more ventilation at the bottom. True; but this is easy to remedy, and it seems to me Dr. Tinker is a long step in advance in this respect by this arrangement for ventilating his hives through the bottom of his winter case.

Now, if we place a thin board down solid on the top-bars of our brood-frames early enough in the fall for the bees to glue up the crevices, and thus prevent all air currents from passing up through our hives, we again get even with our box-hive brethren; and where we prevent all radiation of heat is by placing a cushion on top of this board the same as we do the side; and, further, in spring and early summer when we give our bees just the ventilation required by raising this board we are another long step ahead of them. This board should be thin, so that it will warm through quickly when we remove the cushion, and let the sun's rays strike it. It is just as good, or better, an absorbent of moisture than the Hill device, or sticks and chaff cushion.

[Yes, that is quite in line with our experiments. You are not the first one to make public this matter of sealed covers under packing. This is a very old, old idea, and was made public years ago. We have not taken time to look over the files of the bee-journals, but we call to mind Mr. Francis Danzenbaker, now of Washington, D. C., who wrote an article some two or three years ago, emphasizing this point very strongly. After all, it does not matter very much as to who first made the matter public. The real question should be, "Are absorbents a detriment? and if so, is a sealed cover, or a board over the frames, better?" So far we agree with you that it is. Mr. Pierce, you will remember, has been working on this same idea for the last four or five years. Probably this will call forth information as to who made the matter public some years ago. There may be a satisfaction in knowing, even if there is no practical importance attached to it.]

* * *

RAMBLE NO. 51.

AT DOWAGIAC.

My friends, did you ever see an emery wheel at work? Of course, you have; and you have seen what a smart wheel it is too. An emery wheel at work means business. Mark a point back on your piece of hard steel, and apply pressure, and the wheel soon gets there. To get there is second nature to an emery wheel; and what a reckless way it has of showering stars, comets, and whole constellations around it! how the streams of fire scintillate, glow, and snap! and how we admire them!

We have to go to the material world sometimes for a comparison for certain men we meet. Should you meet the man I met in Dowagiac, Mich., and call him a sitting hen, everybody would laugh at the preposterous comparison. Some men are called foxy; but this man is not, for he is not after things that do not belong to him; neither is he a snake in the grass. All know just where he stands; so the brilliant scintillations of the emery wheel remind me of the remark of a prominent bee-keeper in Michigan, that I would meet the smartest bee-keeper in America in Dowagiac. My comparison is correct, and James Heddon is the man. If his inventions, his writings, and the discussions and stir caused by them during the past few years, have not been a sort of pyrotechnic display, then our comparison is vain; and whatever may be said of the man or his methods, there has certainly been an advance in practical bee culture since the display commenced.

I found Mr. Heddon a prominent factor in the pretty little town of Dowagiac. As a live editor of the leading newspaper of the county he has a deep interest in the welfare and development of the town. It was to this office I wended my way after alighting from the train, finding the office occupied only by writing-tables, type-writers, and a profusion of books and papers. I pushed on to a rear room, and was met by a large, well-regulated, benevolent-looking man, with sandy hair and beard, who informed me that Mr. Heddon was not only out, but out of town, but would soon return. This was encouraging news; and after a lunch at the hotel I found Mr. Heddon, or, rather, he found the Rambler, and in a short time thereafter we were doing the town behind a horse that was 75 per cent faster than that "slow poke" of E. R. Root's. We were bowling along over the level roads, taking in the beauties of the town, when a young man was overtaken and invited to ride. This was Mr. Heddon's apiarist, Mr. McNiel. The young man looked lonesome on the rear seat alone, and another man was called in to keep him company; and it was that benevolent-looking man I first saw in the printing-office. The introduction given here in the wagon awakened a lively interest in my thoughts toward the man. It was Mr. Herbert A. Burch. Mr. Burch a few years ago, as will be remembered by the older bee-keepers, was an apiarist, and an instructive writer upon the various phases of bee culture. Winter losses, confidence in those unworthy of it, and perhaps mistakes in business calculations, threw a cloud over his name, and he retired from the business. That he is now Mr. Heddon's trusted manager of the Dowagiac *Times*, and has done all he could to straighten out the tangles of the past, the Rambler believes should be known; and I offer this as a slight tribute to a man who may have suffered silently, but who deserves the sympathy of the many who have made mistakes and had misfortunes.

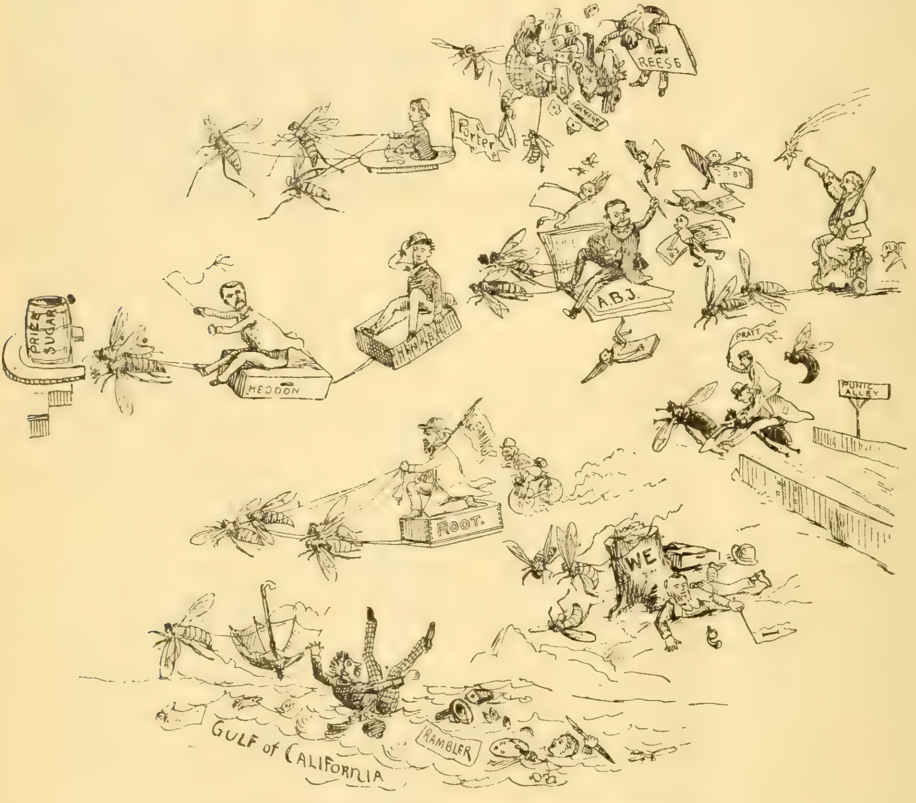
THE RAMBLER AND HIS EMERY WHEEL.

In the evening our party was increased by the presence of Mr. Stolley, a bee-keeper, and Mr. H.'s two sons; and under the brilliant electric lights we listened to the past, present, and future conditions and methods of bee culture.

Mr. Heddon is rapid in the use of language, positive in expression, and emphasizes his words by muscular action. A rocking-chair is made for ease and comfort; it was probably a comfort to Mr. H., but the chair had a hard time of it. It was well made, however, and stood the racket. Mr. H. is a universal genius. Among other trades he has been a shoemaker, tinsmith, blacksmith, carpenter, teacher in dancing, and Sunday-school superintendent. The latter occupation must have occupied attention several years ago. I judge so from the nature of the story he told us about the Devil and the minister.

Mr. H. is now editor of the Dowagiac *Times*, a clean-cut political paper of Democratic proclivities.

Still, for the money invested, time and expense and work, the apiary was the best paying business in which Mr. H. had ever engaged. My call was made in the height of the basswood season, and that day the bees were booming on it. During the night, heavy thunder showers prevailed. The electric lights of the street were set to dancing by the vivid discharges above; and when the day finally dawned, a cool north wind prevailed. The horse was called to duty again, and his fleet feet covered several miles ere we returned. Several basswood groves were passed. The north wind was swaying the pendent blossoms to and fro, but not a honey-bee was at work. "This means $75 out of my pocket to-day, and every day this lasts," anxiously said my friend.



HIVE-HOBBY RIDING: THE RACE FOR SUPREMACY.

Many clumps of pleurisy were pointed out here and there in the fields; and that great northern honey-plant, epilobium, had put in an appearance further north, and given Mr. H. an enthusiastic hope of its further rapid advance.

The home yard in the outskirts of the town contained about 200 colonies of bees, with a commodious honey-house upon one side, and all surrounded by a high and tight board fence. Every thing in the interior of house and yard was neat and tidy. A large double-geared Stanley honey-extractor was on duty. One very convenient arrangement was a large tank, into which water could be drawn, cans of honey placed, and all heated from a stove in the cellar. A large amount of candied honey can be quickly and safely prepared for market. The Rambler would have been pleased to present with this a photo of the apiary; but our camera was at the hotel, and Mr. H. has never had a photo taken, as there is no place, according to his mind, to get a good view of it.

Upon entering the apiary one becomes aware of the fact that but few of the new divisible brood-chamber hives are used here. Mr. Heddon, being an economical man, he will not destroy his good L. hives, but prefers to replace them gradually, and run his out-apiaries with the new hive. The idea has never been conveyed that any more honey can be obtained in the new hive than in any other standard hive, but that it can be obtained easier, and with less manipulation. The Rambler has used the H. hive to some extent, and wishes here to summarize some of the good points. While I do not insist upon a divisible brood-chamber, I still find many good points in it that, after much questioning in my own mind, lead me to prefer it. Contraction can be accomplished in a moment, and the whole force confined to one case. Expansion can be as quickly accomplished, and a colony built up rapidly, and not a frame removed. If it is desired to increase the number of swarms early, the shallow cases accomplish it with the least amount of labor. The queen-excluding honey-board has come to stay, and it can be used to greater advantage, and to a wider extent, than upon any other hive. The latest improvement before the fraternity, and the full import of which is not yet fully appreciated is the Porter bee-escape (which is really the only good escape. This can be used most successfully with the shallow case, and with no other. With this case the hot, disagreeable work of brushing bees from the combs is at an end; also the exposure of dripping combs when returned to the hive. And now the only thing in the way of enabling one man to extract from double the number of colonies he now does is an uncapping-machine and a cheap motor; and let me tell you, friends, electricity is going to do it.

The L. frame is a good enough frame in the brood-chamber for probably a great majority of bee-keepers; but the tendency of the times is to have every thing half story above it. There are other favorable points in the shallow hive in relation to feeding, wintering, and moving, and the above points were arrived at among the hills of New York, in actual work with over a hundred booming colonies. When the prejudice and factional feeling that has been aroused by perhaps a too acrimonious discussion subsides, the divisible brood-chamber will occupy a more prominent place in the broad field of apicultural pursuit. The race for supremacy is for the most deserving; and in the hours of the night, and while in the elegant home of Mr. Heddon, and while the thunders were rolling and the lightning flashing, our disturbed slumbers saw the grand race for the prize. "Who will win?" is the query of the

RAMBLER.

[The junior editor has never had the pleasure of meeting Mr. Heddon personally, although we have talked back and forth pretty freely over the typewriter. We expected to meet him at the Michigan State convention at Grand Rapids, but for some reason or other our Dowagiac friend did not make his appearance. It is no doubt true, that Mr. Heddon has contributed to the world several useful inventions. He has a keen perception of what is useful and practical for the apiary.

Well, now, about that dream. You have put Heddon in the lead, but we hope he is not after the sugar-barrel only. It is "Success in Bee Culture" that he is after, not sugar. We suppose that is Dr. Tinker who has hitched his hive to Mr. Heddon's. Possibly Tinker may object to that impersonation; if so, let him score the Rambler. That man Porter is getting there too; and the other fellows who would be his rivals seem to be utterly demoralized in the race. And there comes Bro. Newman, of the *American Bee Journal*. He seems to be combatting successfully some imps which we suppose to be newspaper canards. The one he has slain is probably the wily Wiley of artificial-comb notoriety. We wonder whether some of those imps are not grip seeds floating around seeking a lodging-place. If so, we hope Bro. Newman will make them all bite the dust. Bro. Doolittle is riding on a log skep as an emblem of nature, and carrying along his two hobbies, his telescope and rifle. Hello, there is Alley riding Punic bees up Punic Alley for his hobby; and E. L. Pratt seems to be pretty well on top. Who is that gentleman by the stump? Why, that must be Dr. C. C. Miller. In his onward flight he must have encountered, with his personal pronoun *I*, the editorial *we* in the shape of a snag or stump. How could you, Rambler? You have gone and cartooned both the senior and junior editor; and, worse than all, you have got *Heddon's* hive nearer the goal than the Dovetailed. We suppose the little fellow behind, with glasses, on the Safety bicycle, must be the chap who went through York State, and came back home crazy on fixed distances.

There, just as we expected. The onward rush has been so great that the Rambler has finally landed in the Gulf of California; and our friend the artist is barely able to keep his head above water. Well, dreams are deceptive; but sometimes they come "awfully near" picturing truth.]

MICHIGAN STATE BEE-KEEPERS' CONVENTION AT GRAND RAPIDS.

NOTES BY ERNEST R. ROOT.

I arrived at Grand Rapids on the morning of the 31st of December. After registering at the hotel I inquired where the bee-keepers' convention-room was. As I did so, somebody who looked very much like the Rambler turned and inquired whether I was Ernest. In the language of the Rambler, we "exchanged our identity." Instead of being the California man, however, it was none other than a bee-keeper whose acquaintance I had long desired to make—George E. Hilton, of Fremont, Mich. Mr. Hilton explained that only a few had come, and that most of the trains on which the bee-keepers would come arrived after one o'clock. After making the acquaintance of the few who were present, we adjourned to Mr. Hilton's room, where we had one of those delightful, informal conventions.

It was not expected that the attendance would be very large, or even up to what it had been formerly. Michigan bee-keepers had passed through another very poor honey season. Very few indeed there were who could report an average yield of more than 10 lbs. per colony. But there was a fair attendance at the opening of the convention, in the afternoon. After the transaction of a little business we listened to President Taylor's address. I was prepared to take notes in the usual way; but as I listened I became more and more convinced that the address was so valuable, and so vital to the interests of all bee-keepers, that it would be an aggravation for you to read only a brief *resume* of it. I accordingly stopped taking notes, and at recess requested a copy of the address in full, which I am glad to present and recommend to the careful perusal of every bee-keeper. Mr. Taylor prefaced the reading of his address by stating that he had chosen for his subject,

ECONOMY IN HONEY PRODUCTION.

Another year has come, bestowing its blessings where it listed, and is gone; and whether it has favored us as we had hoped and desired or not, we may well look, and in no complaining spirit, to discover, if we may, by what rule its largesses have been bestowed, and why our expectations have not been met. To the country at large, its bounties have been unexampled; but to those who pursue that vocation which this convention is met to promote, they have been, we will pretty generally agree, in one point at least, rather meager. But are we altogether right in our estimate? Are we not too much given to cultivating a feeling of disappointment, that we do not get a heavy crop, rather than to accepting an average crop with gratification, or to making the most of a small crop? Relatively we have, of course, had a bad year. Some have even had no surplus at all; but, on the average, has the year been necessarily an unprofitable one? I say *necessarily*, because sometimes one has notions of the profitable character of the venture he is about to engage in so elevated that he wastes sufficient to make a fair profit.

Once, many years ago, a craze for the production of hops took possession of the farmers in a certain locality near where I lived. Prices were high; the crop, in their estimation, certain, and so they were impressed with the certainty that inevitable wealth must fall to every one engaging in hop-raising. Then, naturally, the absolute certainty of coming wealth ushered in a feeling that it was already in possession. At furthest the gold was only over the fence, in the soil of the hop-field, and a little plowing and harrowing in the spring would secure it; so they were already wealthy, and acted on the assumption. No effort was made to secure a line of retreat. Victory was sure. Extravagance in the building of hop-houses, in laying in supplies for the pickers, and for the handling, weighing, drying, and packing of the hops, ruled the hour. But the storm came. Insects infested the hops; the quantity, quality, and price were all lessened, and bankruptcy overtook nearly all of them. The same thing is illustrated by numerous instances in the pine-lumber business. High expectations obscured the necessity of care and economy, and waste kicked the profits out of doors, and let in disappointment and failure.

Ruminating upon these things in connection with the business of honey-production, the idea suggested itself that perhaps our notions of the status of bee-keeping with respect to profits and necessary expenses need readjusting, and that the present series of bad years would be a good time to consider the subject.

It may be, I thought, that we are risking a chance of failure by encouraging fanciful prospects of success which are much too highly colored, so that we become content to calculate that, though by the spending of time in the useless manipulation of the bees, and by the purchase of elaborate lines of machinery and supplies we make the cost of comb honey 12 or 14 cents, we may yet be sure of a crop large enough so that the difference between those figures and the selling price will yield a good profit. I do not question the prospect of profits in fair seasons, with good management; but I wish to call attention to the danger of putting too much reliance on the profits, trusting that they will carry us through, no matter what the seasons are or to what a high point we run expenses. If one practices proper economy, and thereby keeps expenses down to the lowest reasonable point, he has still no bonanza, to be sure, but a safe, comfortable business. The criterion of expenses should be actual needs—not what it may be supposed the business will bear. If we make this latter the test, as the majority are greatly inclined to do, we are all sufficiently optimistic to fall into the fatal error of putting the average yearly production too high, and, as a consequence, to encounter failure in the end.

Mr. G. M. Doolittle has said, that, if labor and capital get their due reward, the cost of comb honey is 13 cents per pound. It would be interesting to know how he arrived at his conclusion. Did he take the average of the seasons, as they are with him, as a basis? In that case, as the seasons with him average better than with bee-keepers generally, to them the cost would be even greater than to him. Then I should like to know how much of the cost is labor, and how much capital. May be he is extravagant with labor. Not long since, if I remember correctly, he gave it as a reason why he preferred a hive whose frames required handling to one which could be handled in two sections to accomplish the same purpose, that he enjoyed handling the frames—that he got his pay in fun. It may be that Mr. D. and some other bee-keepers may grow fat on fun; but I am pretty sure that our wives and children will not grow fat on the fun that we alone enjoy. We may well inquire, too, whether he figures in this kind of labor to make up the 13 cents cost, and so is contriving to get full pay from each of two sources. At all events, it requires no argument to show that it would not do to permit the cost of honey to reach 13 cents per lb. If it were a necessity to permit it, but few of us would remain in the business.

There is no one but will admit that we should keep the cost down to the lowest possible point, and all would be glad to know what that point is. Of course, there must be no extravagance in buildings nor in supplies, and there must be no loss of valuable time. I have made, and submit tentatively some estimates which may, at least, serve as a stimulus to further calculations, as well as a conclusion to the suggestions I am making. For my figures I have taken 150 colonies as perhaps the average number that could be kept profitably in one place. The expense is made up of what may be called the fixed charges; i. e., those that are the same, whether the crop is large or small, and the variable charges, which are made up of those expenses which vary with the amount of the crop. The larger the crop, the less, of course, is the cost per pound; and my figures are made so as to bring this out somewhat in detail. I estimate the value of the necessary plant as follows:

Shop and cellar	$300
Tools, cases, and extras	150
150 colonies of bees at $5.00	750
Total	$1200

So my table will stand thus:

FIXED CHARGES.

Interest and wear and tear on plant, at 10 per cent on $1200	$120
One man 6 weeks during honey-harvest	45
Taking bees into and out of cellar	5
Other manipulations	5
Total	$175

VARIABLE CHARGES.

Cost per each 1500 lbs. surplus, being an average of 10 lbs. per colony.

2000 sections	$ 7.00
Foundation	10.00
Fastening in foundation	1.00
Putting sections together	1.00
Crates	10.00
Packing	4.00
Commission and freight	17.00
Total	$50.00

Total cost of a crop of 10 lbs. on the average, or 1500 lbs., $225.

To this must be added $50 for each additional average of 10 lbs., whence we get the following results:

With an average of 10 lbs., the cost per lb. is 225 divided by 1500, which gives .15.

With an average of 20 lbs., the cost per lb. is 275 divided by 3000, which gives .0916.

With an average of 30 lbs., the cost per lb. is 325 divided by 4500, or .072.

With an average of 40 lbs., the cost per lb. is 375 divided by 6000, or .0625.

With an average of 50 lbs., the cost per lb. is 425 divided by 7500, or .056.

With an average of 60 lbs., the cost per lb. is 475 divided by 9000, or .052.

With an average of 70 lbs., the cost per lb. is 525 divided by 10,500, or .05.

Calling the market price 15 cents, and taking a further step, we have the net profit in each case as follows:

Crop, lbs.	Price.	Value.	Cost.	Net profit.
1500	15 cts.	$ 225	$225	$ -
3000	"	450	275	175
4500	"	675	325	350
6000	"	900	375	525
7500	"	1125	425	700
9000	"	1350	475	875
10500	"	1575	525	1050

These figures are far from discouraging, but they speak powerfully for keeping expenses down. In an average location, one who spends 365 days in the year on 150 colonies can not expect to get rich; but by making six or seven weeks do, he can make his investment pay well. the difference in the number of colonies in different apiaries, the presence of buildings or cellars that can be used without expense of making special buildings and cellars, and the difference in average yields in different localities makes a great difference in the net cost of honey; yet though our circumstances vary greatly in many ways, we can, nevertheless, by severally calculating the cost in our respective cases, assist one another in putting the business on a more stable basis than it has hitherto occupied.

R. L. TAYLOR.

The president was so modest that he passed right on to the next topic on the program before the bee-keepers present could enter into any discussion. But during all the sessions the subject of the address would crop out. J. H. Larrabee, of the Michigan Agricultural College, thought he could perform all necessary work in a well regulated apiary—in fact, do every thing in connection with the business, from the folding of sections to putting in starters, to the final disposition of the honey crop on the market, and yet allow only half a day's time for each colony. That is, 150 colonies would require 75 days; 300 colonies, 150 days. It was suggested that the average bee-keeper could not afford to do *all* the work—that it would be cheaper for him to hire cheap labor to perform such work as folding sections, putting in starters, providing crates for the hives, scraping the sections, etc.; that the time for each colony might be thereby reduced very materially, leaving the expert or owner of the bees to do expert labor, such as getting the bees into proper condition for a honey crop, managing the swarming, putting on and taking off the sections. Some argued that Mr. Larrabee was too economical of time, and wanted to know what would be done about swarms. Some one suggested caging queens until the swarming season was over; others dividing, and still others using drone-traps or automatic swarmers. It was too expensive to keep a man in each yard to look after swarms.

The question finally turned to the importance of handling hives instead of frames. I was called upon to tell what I knew about it. As I have already made myself sufficiently plain in previous numbers, I will not go over the ground here again. Mr. Taylor then explained how he could find queens in the Heddon hive with the shake-out function, and how he could ascertain the amount of brood by simply dividing two sections of the brood-nest.

Taking every thing into consideration, it was plain that bee-keepers had become accustomed to putting too much time upon their bees; that the only way to reduce the cost of honey per pound was by handling hives instead of frames, or, as some of us preferred to put it, diagnosing hives more and handling frames less. As to the cost of comb honey per pound, Secretary Hilton said that, prior to four or five years ago, his crop averaged him, from one year to another, about 4 cts.; but during the last three or four years it had gone up pretty high. In one yard which he had on shares, if I remember correctly, he said the average cost of comb honey per pound was $1.00. He had had enough of that.

There is one very encouraging feature in President Taylor's address; and that is, that a bee-keeper may make a slight margin of profit, even when his average is only 20 lbs. per colony. This is a fruitful theme, and Mr. Hilton has promised to give us some more positive data on the subject in a future issue.

BEST ALL-PURPOSE BROOD-FRAME.

Mr. Larrabee, in a well-written paper, discussed this subject. It was not difficult for each one, he said, to decide upon one for himself; but no *convention* of bee-keepers could agree. The essential feature of an all-purpose brood-frame was, that it should have a top-bar thick enough so as not to sag, and from $1\frac{1}{16}$ to $1\frac{1}{8}$ in width. He liked the narrow bottom-bar that Bro. Root had recently introduced, for the reason that bees build combs down to it better; and with such a frame, when withdrawn from the hive, there was less danger of rolling over or killing bees. The queen also was less likely to find a hiding-place between the bottom edge of the comb and the bottom-bar. Frame-ends should be at least $\frac{3}{8}$ inch thick. As to whether they as a whole should be of the fixed or self-spacing style was a point upon which he had not yet decided. He urged that all bee-keepers, as soon as practicable, adopt a standard size; and that standard size, in the United States at least, was the Langstroth. Mr. Larrabee then read replies from a number of prominent supply-dealers, all of which, with one exception, indicated that thick top-bars are about to displace all frames with the narrow and thin top-bar.

I was called upon to give my experience with the thick top-bar. Most of our readers know what I think about them, so I will not take space to repeat it here. But I was surprised to see how many there were who testified to the value of the non-burr-comb frame, after an experience of from one to three years. I was interested to note, also, how many, both in convention and in between sessions, signified their intention of adopting Hoffman end-bars, or some style of fixed frame.

EPILOBIUM, OR WILLOW-HERB.

I was indeed surprised to hear so many testify to the value of epilobium as a honey-plant. In some places it is called willow-herb, and in others, I believe, fireweed. In localities where it grew profusely, even during the last poor seasons, it has yielded well. At the hotel table it was my pleasure to sample some of that Mr. Hilton had brought in, on buckwheat cakes. In body and color it was all that could be desired, and in flavor superb. If I had taken it at the first course, my opinion as to its qualities might be taken at some discount; but I tasted it after having eaten a hearty dinner; and ordinarily the keen relish of taste must have been dulled some.

TRYING NEW THINGS.

W. Z. Hutchinson, of the *Bee-keepers' Review*, read a very interesting paper on the subject above. Bee-keepers, he said, are given to trying new things. They are ready and eager to invest their hard-earned dollars in new-fangled traps. It is unwise to invest in and accept every thing that is new, as good; and it is equally unwise to reject every thing simply because it is new. We are to choose wisely. To an experienced bee-keeper a description of an article, device, or method, is all he may possibly need to decide regarding its practicability; but many are given to jumping at conclusions without carefully weighing and testing. Among the new things, he mentioned the later varieties of bees, automatic swarming-devices, bee-escapes, etc.

At the conclusion of his paper a lively discussion took place in regard to the Punic, five-banded, and Carniolan bees. The two latter had their advocates, as well as those who had found them wanting; but the Punics no one seemed to know very much about.

AUTOMATIC SWARMING-DEVICES

was another new fad that was discussed. A few had faith in them, and thought they would some time amount to something; but the chief objection seemed to be their expense, and failure to get all or a large part of the bees of the swarm into the new hive. It was argued by President Taylor and others that the labor of attaching them to the hive, and helping them to complete the unfinished work, would be very nearly as much as hiving the swarms outright. Mr. Hutchinson had faith in them.

THE BEE-ESCAPE.

There was no dissenting voice, so far as I can remember, as to the great value of this labor-saving device. A number testified how much time it had saved them, and what fun it was to take off crops of honey. Mr. Larrabee said his brother had taken off 2700 lbs. of extracted honey without so much as brushing or shaking the combs, the bees being freed from the supers by the bee-escape. Some one asked Mr. Larrabee what sort of escape his brother used. It was one of his own construction, on the horizontal-cone plan. As many of our readers may be interested in this escape, we hereby ask one of the Larrabees to send us one of the escapes, with description, and we shall be pleased to place it before our readers.

Mr. Ray and President Taylor had used with satisfaction Dr. Miller's bee-tent, the same thing that was described in GLEANINGS several years ago. They piled up the supers, put one of these bee-tents on the top case, and let the bees crawl out at their will. I believe they said they hastened the matter by shaking out as many bees as possible in the first place, and then smoking them upward.

Among other new things were the late methods of wiring. M. H. Hunt preferred the old style, with perpendicular wires, and secured perfect combs. One or two others had tried the Keeney plan with good results; but I, of course, argued for the horizontal wiring, as being cheaper and requiring less labor.

WINTERING IN MICHIGAN.

A. J. Acker, Martiney, Mich., gave us an interesting talk on the subject of cellar versus outdoor wintering. He did not have success with the outdoor plan, and finally necessity obliged him to winter indoors. His plan was, to have the covers sealed down, and set the hives on top of trays four inches deep, one end of the tray being open for an entrance. This gave ample bottom ventilation. For a winter repository he used an upground cellar, something as G. M. Doolittle has lately described. In these he puts his colonies, piling them in closely, but each hive having a four-inch space under the frames. The results had been most excellent. J. P. Berg, Traverse City, Mich., the fun-maker at this convention, not so much for *what* he said as for his *manner* of saying it, wintered both ways; but colonies that wintered outdoors in chaff hives not only wintered the best, but were stronger in the spring, and cast swarms earlier. Geo. E. Hilton, M. H. Hunt, and J. H. Larrabee corroborated this testimony, and stated that that was the general experience in their localities. President Taylor could do nothing at outdoor wintering, but indoors he had success. There were advocates at this convention of both plans; and it seemed to me, as I listened to their testimonies, that, while one wintered indoors and the other outdoors, the result was due largely to locality. I learned afterward that there was a great difference in Michigan localities. Where it was very cold, there cellar wintering generally prevails; and in milder places the outdoor plan gives better results.

BEE-KEEPING AND OTHER BUSINESS.

Mr. W. E. Gould discussed the question as to what business can be combined with bee-keeping; and Mr. A. J. Pierce, a little later on, the subject of bees, poultry, and fruit. The two topics naturally covered the same ground; and in order to save space I will endeavor to give the gist of both discussions in one. Mr. Gould argued that, where one had two or three out-apiaries, he was, in a sense, a specialist, and therefore would hardly have time to do much with any other business; but if he had only one yard of only a hundred colonies, it might be well for him to consider what other business he could combine profitably with it. Localities and men differ very much; and what would be a success with one would not necessarily be so with other men in other locations. Other things might be combined with the bee-business, such as fruit culture, teaching school, and poultry-business. Mr. Pierce, from the standpoint of the fruit-grower, gave some valuable suggestions along this line. Fruit and poultry combine very nicely together. The latter help very materially to diminish insects on the fruits, such as the destructive curculio on the plums. The small breeds of poultry, such as the Leghorns, are better for this purpose. The Asiatic kinds are not so good foragers. The manure from eight hens is equal in fertilizing value to that from one cow. As with bees, fruit-men sometimes experience poor seasons. At such times the poultry and bees are a great help, and make all the difference between profit and loss. It seems to be a recognized fact, said Mr. Pierce, among all fruit-men, that bees are necessary to the proper fertilization of the blossoms; and if his neighbor didn't own bees, he must have a few colonies for himself. It would pay him, even if he secured no honey. Mr. Berg gave us some excellent suggestions along this line. He is both a fruit-grower and a bee-keeper, and he found that his poultry had so reduced the evil resulting from the curculios in his plum-orchards that the curculio was not to him a pest. In fact, he *wanted* a few to kill off some of the fruit, as his trees would bear too heavily otherwise. Along with these discussions came up the matter of

SPRAYING FRUIT AND POISONING BEES.

This convention, like the North American at Albany, furnished abundant proof to the effect that bees have been poisoned in great numbers when the trees have been sprayed during the time of blossoming. Mr. Pierce gave us some of his own experience. He had had his apiary nearly cleaned out by a neighbor who had sprayed his trees during the time of bloom. This neighbor did it ignorantly, and stopped at once when he learned of the consequences. The bees had been in the most promising condition for a good honey crop; but the spraying had utterly ruined its prospects. The neighbor in question followed the directions of the pump-maker; and it was suggested that all pump-makers or manufacturers of spraying-apparatus be labored with, who advise spraying during fruit-bloom. Two or three bee-keepers, Mr. Pierce among the number, said that, so far as they had learned, they were all very glad to modify their directions as soon as they were informed of the evil results to the bees. The opinion seemed to prevail that, as soon as fruit-men and manufacturers of spraying-outfits were properly informed, bee-keepers would have no further trouble; although it was urged that every State pass a bill, more for its educational effect than for legal coercion.

A PECULIAR BEE-DISEASE OR MALADY.

There was only one lady, Mrs. Delia Coop, present at this covention, and she had come to seek light on a certain peculiar malady which she had found in her apiary. She was not sure whether or not it was foul brood. The brood in the imago state died before coming to maturity. There was no foul odor; and the peculiarity of the whole case was, that the immature bees, instead of having heads turned toward the cappings, were reversed, with their heads toward the midrib of the comb. The trouble seemed to be contagious and constitutional. The disease or malady had existed in her apiary for a couple of years, but was not present in any other yards in the same vicinity. Poison was suggested as a possible cause; that the larvæ, weakened thereby, were unable, just before entering upon the imago state, to reverse their heads for the last time, and in their unnatural condition died. But the lady explained that the bees had had no access to poison, as it was past spraying-time, or when other poisons were used. We were unable at the convention to suggest any thing else than the poison theory; but as this will appear before thousands of readers, there may be others who have seen similar cases, and have ascertained its cause. If they are able to give us any light on this point, we shall be glad to have them do so.

THE USE AND ABUSES OF FOUNDATION.

Mr. M. H. Hunt, of Bell Branch, read an essay on this subject. The intelligent use of foundation, he said, had added to the profit and pleasure of bee-keeping. Attempts had been made to make combs the full depth of cells, and all had led to failure. Even if successful, such combs would be of no practical value to the bee-keeper, their bulk being so great that freight-rates would forbid their use. He recommended full sheets of light brood foundation, wired on the perpendicular plan—the sheets to be cut to the exact full inside measurement of the frames. By the use of starters in brood-frames, perhaps bees will enter sections sooner, but that is not the only thing desired. Drone comb would be apt to be the result unless great precautions were taken, such as young queens and first swarms. The abuse of foundation was the manner of putting it in. As his sheets were cut to the full size of the frame, he fastens the edges by pouring melted wax from a spoon around the edges, the point of the spoon being narrowed to make a fine stream.

The election of officers resulted as follows: President, R. L. Taylor; Vice-president, J. H. Larrabee; Treasurer, M. H. Hunt; Secretary, G. E. Hilton. The next place of meeting is Lansing.

THE VISIT OF MR. C. P. DADANT AND HON. J. M. HAMBAUGH.

THE KODAK FIEND; THE WINTER PROBLEM; POLITICS AND BEE-KEEPING.

By Ernest R. Root.

The Dadants have been perfectly free in giving us some of the kinks of the trade in foundation-making, and I have long desired to reciprocate. In response to my repeated invitations to visit Medina, Mr. Dadant finally told me, at the Albany convention, that he had decided to go home with me, taking with him his friend, the Hon. J. M. Hambaugh. This was indeed a double pleasure.

I have sufficiently introduced the representative of the largest foundation establishment in the world, so that our readers are quite well acquainted with him; but with Mr. Hambaugh there may not be the same acquaintance, and I am very glad of this opportunity of introducing him more fully.

Hon. J. M. Hambaugh is not only a prominent and successful bee-keeper of Illinois, but one of their legislators. He was elected as a member of the House of Representatives, and was one of the famous 101 Democrats who finally succeeded in electing J. M. Palmer to the U. S. Senate. Those who are familiar with the facts will remember that, in the House of Representatives of the State of Illinois, there were 101 Democrats and 100 Republicans. Besides these there were three Farmers' Alliance men. In order to elect their senator, the Republicans would have to win over to them the three Alliance men, or the Democrats two of them. After voting and adjourning day after day, with no result, the Democrats finally elected their candidate by securing two of the Alliance men. Mr. Hambaugh, besides being one of this famous 101, will be remembered as the one who introduced the bill, which passed both houses, securing to the State Bee-keepers' Association an appropriation of $500 annually. He also introduced another bill, which nearly passed, regulating the matter of spraying fruit-trees in such a way as not to be detrimental to bee-keepers. This bill would have passed, but it was near the close of the session, and was simply held over.

At the close of the last day of the Albany convention, Mr. Dadant and Mr. Hambaugh, together with your humble servant, boarded the train for Medina. And then we talked as only three bee-keepers can. We covered the whole round of bee-keeping; but as we had an "honorable gentleman" in our crowd, we drifted more or less into politics. Messrs. Dadant and Hambaugh would continually fall into argument, while the third member of the trio listened. I do not know how the other two felt after they arrived at Medina; but it is sufficient to say that my sides were sore from laughing over the good-natured sparring that passed back and forth between the two Illinois men.

We arrived at Medina on Saturday morning, and the visitors were then escorted about the Root establishment by our business manager, Mr. Calvert, while your humble servant looked after the matters that had been left until his return. In the afternoon, as they were obliged to take the evening train I went with them through some of the other departments. We tarried some little time in our foundation-room. I noticed Mr. D. watching one of the girls roll off foundation. A smile began to play over his face.

"What now?" said I.

"I guess," said he, "there is one of the kinks that you people haven't learned yet."

Mr. Dadant observed that the foundation had a fashion of sticking to both rolls as it came out, tearing the wax, and making it difficult to secure the end free from both rolls. He stepped forward and dipped his hand into some cold water, and allowed the water to drip on the upper roll, and, presto! as if by magic the foundation stuck the next time to the upper roll, and pulled off easily. This was something that we hadn't yet got hold of, and we are glad to give it to the bee-public for what it is worth. Mr. Dadant explained that the reason the foundation stuck to both rolls was because they were of the same temperature; that you could make the wax stick to the upper roll by cooling it slightly.

After looking over things inside of the buildings, we rambled over to the "yellow house," as we call it, where we keep all sorts of implements that are sent in for our approval or crit-

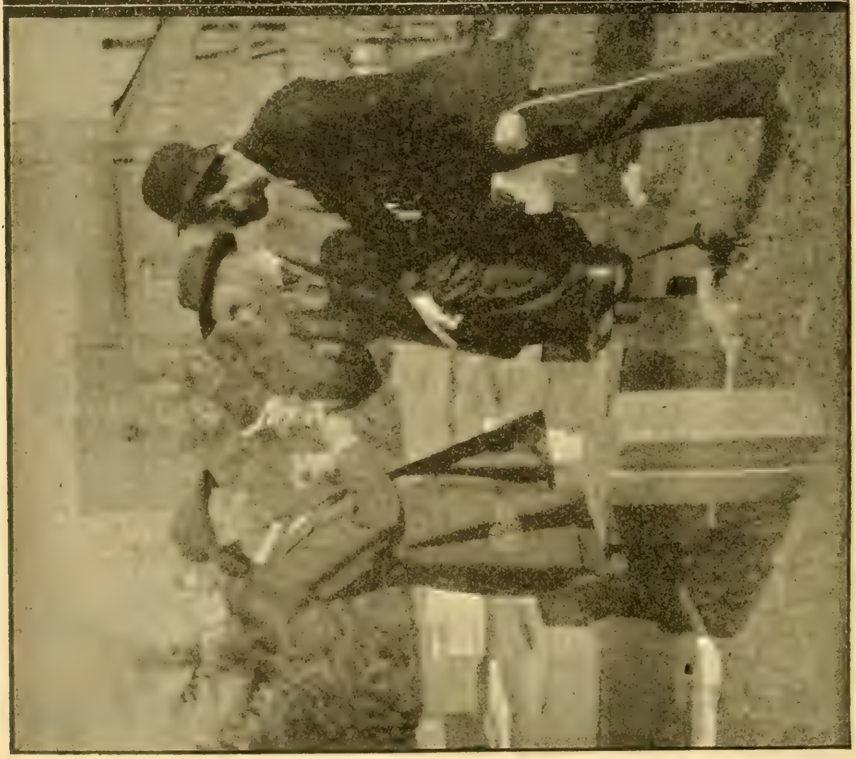


FIG. 1.—SOLVING THE WINTERING PROBLEM.

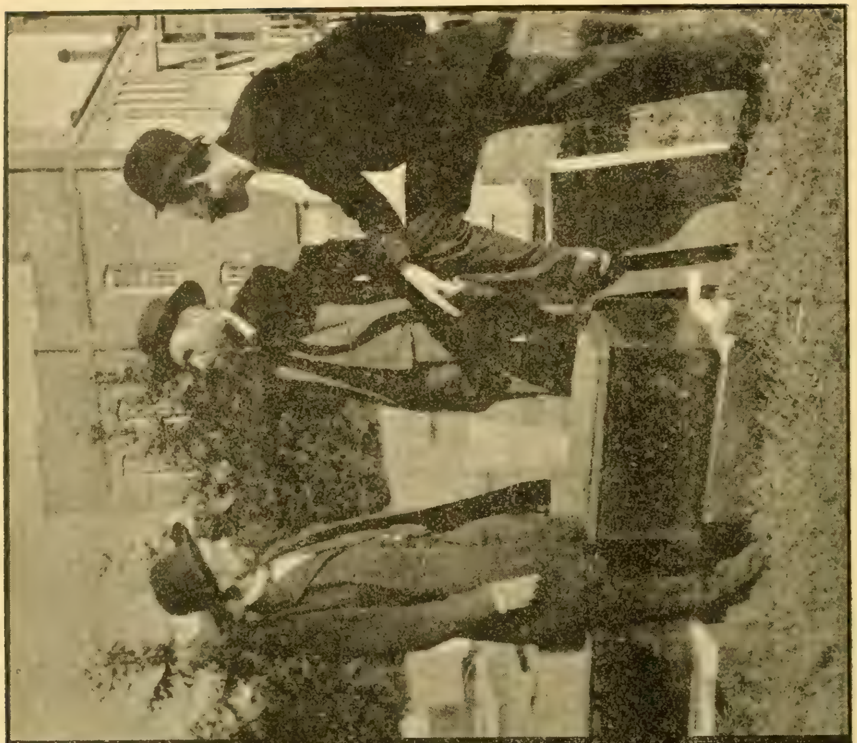


FIG. 2.—WINTER PROBLEM SOLVED.

icism. Among other things, I showed the gentlemen the Hetherington Quinby hive, and how it differed from the original Quinby. While Mr. Dadant acknowledged that it was better than the original hive, and while it might be the only thing that the bee-keepers in York State, among the hills, could use, he could not tolerate it for his section of country he was sure. Mr. Hambaugh took no particular side in this discussion. We next went out into the apiary, where I showed them what experiments I was making in the matter of outdoor wintering—why I was gradually leaning toward having no absorbents over chaff-packed colonies, and why I was beginning to believe that a sealed cover, covered with plenty of packing material, was better. Mr. Dadant disagreed again. Of all the experiments they had made, they had come to the decision that absorbents are quite necessary for outdoor wintering. I showed them outdoor colonies packed both ways; but it was too early in the season to notice any practical difference. We finally strolled over to that portion of the yard where the Shane bees are located, and which was illustrated recently. The hives of this apiary are all inside of our new outside winter packing-cases. Mr. Hambaugh and Mr. Dadant both seemed to like the arrangement.

But I must not forget to tell you a little incident that happened while we were in the yard. The two Illinois men were discussing the methods of wintering outdoors. As they disagreed on politics, so they disagreed here. Of course, I did all I could to make the discussion wax warm; but to me they paid no attention, so intent was each in making his point. Very fortunately for our readers, a Kodak fiend happened to be near the scene, and secured a picture while they were in the height of discussion. Fig. 1 is the result—a snap shot, as you see.

A few minutes later, they came to an understanding; and after all their talk they found they agreed after all. At this juncture this same Kodak fiend took another picture. Well, he and the writer were working in collusion, and I have secured the pictures.

Those who are acquainted with the gentlemen will at once recognize them; and Fig. 2 shows the disputants just as they had come to an agreement, and had said, "Oh! I see now what you mean." But even then they would not listen to me, although I had been talking to them about the winter case. They finally turned to me, and I presume they noticed a smile of triumphant pleasure on my face, for I had just seen the Kodak fiend slip out of sight with his treasures of pictures. "Root is cooking up some mischief," said Dadant; but I protested my innocence. When I bade them good-by as they took leave on the train, they both seemed to think that I had gotten them into some sort of "trap." Their last words were, as they sung out, "We'll get even with you."

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FIXED DISTANCES.

WHAT AN AUSTRALIAN THINKS OF THEM.

I am somewhat puzzled at some of your bee-men advocating eight frames in the brood-nest. I am using ten, Langstroth size, and these are not sufficient for the queen, and she takes charge of three of four frames in the upper chamber. With regard to frames at fixed distances, about six years ago I gave you a description, with drawings, of the hive and frames I devised and had in use. You pronounced it a good hive, but said bee-keepers in America could not tolerate frames at fixed distances. However, I have stuck to it, and have taken first honors every time at the exhibitions; and now I find the Americans are coming around to my way of thinking, and I don't think they will regret it.
THOMAS DIXON.

Masterton, New Zealand, Nov. 28.

[Difference in location makes considerable difference as to the size of hive. The 8-frame hive gives the best results for most localities.]

LADIES' CONVERSAZIONE.

SPRAYING FRUIT-TREES AN INJURY TO BEES.

OUT-APIARIES IN POOR SEASONS.

Have any of the friends in bee culture experienced trouble from bees dying off because fruit-trees were sprayed near their apiary? Mr. Axtell sprayed our fruit-trees and vines four different times, but sprayed none while in blossom, but at the right time after the fruit had set, as per A. J. Cook and Wm. Stahl, of Quincy, Ill. Our bees, when taken from the cellar, were in fair condition, and seemed to prosper as well as bees usually do in the spring, all the while having all the brood they could take care of, so that the most of our colonies, we thought, would be strong enough to gather honey when white clover came, without further building up. This time of looking through them was about the time apple-trees were sprayed. Two weeks later, in looking through they were no stronger, and we feared that not many would be strong enough for the honey harvest, so we took out brood from some and built up others, so as to have as many strong as possible, and yet they did not build up. There seemed to be but few old bees in the hives the first of June, although the combs all the while were full of brood, and covered with young bees; but they seemed to die off as soon as they began to work. This was the condition of the hives all through June in our home apiary.

At our out-apiary, four miles away, near the timber, the colonies were not thus affected. They were wintered out of doors, and built up into fine strong colonies by the first of June, nearly every colony, and gathered some 500 lbs. of surplus from honey-dew besides increasing to as strong colonies as I ever saw; yet there was no swarming. They seemed to know what a long dearth of honey was before them.

In the home apiary there were so few old bees that they could not even fill up their brood-combs with honey. There was a strip of hickory timber about one mile away, from which they gathered some honey-dew—enough to have caused the colonies to become populous. They were not so strong on the first of July as they often are no the first of June. Could this have been a case of common spring dwindling? It seemed different from any thing we ever had before, as, in other years when we had spring dwindling, they died off as soon as taken from the cellar, which they did not do this spring. They acted just as if some one had poisoned them; but we have no reason to think any neighbor or any one else would do so. If poisoned they must have got it from the vines and trees at home, perhaps sipping water from the leaves or from the forks of the branches or limbs of the trees weeks after. Mr. Axtell thinks it was not from spraying the trees, as he watched the bees for several days after, and could never see bees sipping water from the leaves. But I have feared that it was. What do others think? Have they heard of such a case before? I think I shall feel sorry to have our trees sprayed again, for our honey crop is worth much more than our fruit crop, when we have clover honey; besides, our apples are just as wormy as those of our neighbors who did not spray their trees. The apple-trees were sprayed three times—twice with London purple and once with Bordeaux mixture. They fell off badly through the fall also. If it were poisoning from spraying, I should not have thought it would have lasted so long. I could not see any more dead bees in front of the hives or in the apiary than usual. I could see no dead bees or dying bees, that acted as if they had the nameless bee-disease. The rest of the season they did as well as bees could that gathered scarcely any honey. The last of June we took 40 colonies to another location near a timber three miles away, and 20 to another location in an opposite direction, hoping, by leaving but about 70 at home, they would all build up without feeding all summer, as they were getting a living at home, and storing honey at our out-apiary where there were over 100 colonies. We visited each little out-apiary, and saw they were improving, and thought they would take care of themselves, as there were so few of them; but we fed the home apiary some the middle of August.

This fall, when we visited them, expecting to find they had enough for winter, we found very weak colonies, so that we brought them all home again and doubled them up, putting two and three together to winter them, and fed all or nearly all their winter stores. Now, if we had left them at home, and fed them in August a few dollars' worth of sugar syrup, to the amount of the expense of moving them, they would have been much better off, so that we have concluded it pays better in poor years to keep our bees at home and feed some. During good years this location can as easily support 125 or 150 colonies as 50. If they are away from home we are apt to neglect them much more than at home. It is an easy matter to run out to the feeder with a few pails of sugar syrup, and give them a feed now and then; but when we have to feed at an out-apiary it is much more laborious.

At the timber apiary, in the spring we had several hundred brood-combs not in use. We gave them to colonies to put the honey-dew in, rather than have so much stored in sections. The colonies built up very strong—nearly as strong, it seemed to me, as colonies do at swarming time, but none swarmed. They must have had from 40 to 90 lbs. in the brood-nest, so that we felt quite sure of having strong colonies this fall to gather the fall harvest, and so we did; but they had used up nearly all their honey; and as there was no honey coming in to cause the queen to keep up laying, when we came to feed this fall we found the colonies were only about as large as those at home. Some colonies which I saw had two or three combs of eggs. The eggs were all removed—because no honey was coming in, I suppose. So I think it is only guesswork as to which is the better plan—to have strong colonies at the close of the spring honey harvest, that eat much honey through the summer, and are strong in time to gather the fall harvest, which fails us about half the time, or to have small colonies during summer that do not require so much honey to live upon, and are small, consequently, when the September harvest comes in. We fed, both home and out-apiary, granulated-sugar syrup in the spring—nearly all they had to live on, so that it was not poor feed that caused one apiary to dwindle and the other to prosper.

Roseville, Ill., Nov. 10. Mrs. L. C. Axtell.

[We can hardly believe that, if you followed spraying as directed by Prof. Cook, the bees at your home yard suffered from it. Some other cause is more likely responsible for it. So far the testimony has always been that no bad results followed the spraying if administered *after* the falling of the blossoms. Perhaps some of our extensive bee and fruit men of Michigan or elsewhere can give us some light on this matter. We presume that, ere this, you have seen the testimony in the Albany convention report, and in the Michigan, in this issue, to the effect that spraying *during* fruit-bloom is decidedly destructive to bees.]

NOTES OF TRAVEL

FROM A. I. ROOT.

Dec. 12.—Oh, yes! about that pretty moss that coats and covers the rocks. Well, that is not all it does, for, on going about the city, I find that it even covers the roofs of the houses, and it does make them look funny enough. Every roof of any age at all, with its "moss back," makes one think of the "old oaken bucket" of childhood's memory—"the moss-covered bucket," in very truth. My friends tell me this heavy coat of moss does not rot the shingles very much; but as I see our next-door neighbors taking the pains to scrape it off, I confess to being a little skeptical. These magnificent forests, the thrifty-looking fruit-orchards, the beautiful waterfalls, and last, but not least, the moss on the roofs, is the result of the frequent and copious showers, both winter and summer, and, in fact, the year round. Add to this, rivers and bays, so that steamboats go almost everywhere, and do you wonder that there has been a great stampede for Oregon and Washington?

Dec. 24. I suppose I might as well own up that I have been sick. I thought for quite a spell I would say nothing about it; for you have heard almost enough about doctors and medicine already; but as there seems to be quite a lesson right here, I think I will give it to you.

Well, you know I advised calling a doctor, when you need one, from among your own neighbors—a good man from among your acquaintances. But suppose you are a stranger in a strange land, what then? Why, inquire about and find a doctor in good practice that is generally well recommended. That is just what I did in Portland, Oregon. I had been suffering from a severe cold for almost two weeks, and it had settled into a fever, so I thought it must be "lung fever." The doctor, however, said very decidedly that it wasn't lung fever. After a little examination he said, "Your lungs are quite sound. Your cough and cold is a bronchial trouble."

I could hardly believe this; but as it is the third time I have been told much the same thing by as many prominent physicians, I was obliged to believe it. Then he said almost exactly what our doctors away back in Ohio had said—"My dear sir, the real seat of your trouble is a broken-down nervous system; and if you have at present any business on your hands, just get out of it as soon as you can."

I told him I was on a pleasure-trip solely for my health; and he resumed:

"The immediate trouble just now is, however, that you are bilious. Before the quinine you have been taking for your cold can do any good you must get your stomach in trim. What have you been eating lately?"

"Why, doctor, that is the great trouble. I can't eat any thing—nothing tastes natural, unless it is oranges, grapes, lemonade, or something of that sort."

"Oh! but these are the very things you must *not* eat. I'll get you out of this snarl; and now, mind you, you are to have only milk, meat broth, pure water 'straight,' no lemons or sugar, nor any thing of that sort."

"But, doctor, how about the 'cravings of nature being an infallible guide,' etc.?"

"The cravings of nature may be all right, and, again, they may be all *wrong*. Reason and experience must guide and direct even nature's calls."

He prescribed for me, and thought I would be ready to go on in a day or so; but one day, before I had got free from the fever, a friend drove up with a buggy, and wraps enough to give even a sick person an airing safely, and I consented to go over to Mt. Tabor to see a field of Everbearing strawberries. The day was pleasant and warm, and I thought the air would do me good. Dear reader, don't ever try to take a buggy-ride while you have a fever. It doesn't work well. In two or three days we called the doctor again, for I was having chills and fever every day. He pronounced it nervous malarial fever, the same as I had last August.

"Now look here, doctor, has this fever got to have a run of three or more weeks? and had I not better send at once to Ohio for my wife?"

"Oh, dear! no—at least not just yet. I'll fix that fever, at least I think I will."

"But, doctor, this cough I have every night will kill me if it isn't stopped."

He left a prescription for the fever and another for the cough, and said he didn't think I would need to have him called again; but if I did *not* get right along, to send him word.

Now, I was inclined to get exasperated. He wasn't in the house more than twenty minutes, and yet seemed so sure. He said my lungs were all right, that I wouldn't have another run of the fever, and that he could stop the cough. He charged $2.50 for each visit, and I was very much inclined to lose faith in him, and doctors and humanity in general. But everybody said that *Dr. Geisee* was all right, and so I submitted. The fever next day was later and milder; and the day after still more so; and the cough began to abate, so I became more reconciled to my milk-and-water diet, and in a week I was ready to travel again; but I felt very much as I did after my fever of last fall. The moral of this is, that, without a physician's advice, I should have done just the wrong things. Another moral is, that there is progress in medicine as well as in other things. If the intelligent, educated young doctor of the present can tell you in twenty minutes just what you need to do to get well, it is cheaper to pay $2.50 for it than to have a doctor call in every day for a week, even if you pay him only $1.00 for each visit. I am pleased, also, to note the perfect agreement between the skilled physicians of Ohio and one from so far off as Portland, Oregon.

Now, dear reader, I am ready to go on with my story.

Portland, Oregon, is a progressive city of about 60,000 people. They don't have any cellars under their houses, because stuff so seldom freezes in their ordinary rooms, and because so much rain would fill their cellars. Neither do they have cisterns. The water out of the river, sent all over the town by the waterworks, is so very soft they don't bother to make cisterns. They don't have any alley or back streets. Every street is a front street. The consequence is, all rubbish is pitched out in front. As every one burns wood, and as the wood is all pine or cedar, which is quite bulky, the wood business is quite an industry. The wood, in four-foot lengths, is dumped in front of each dwelling. Then the wood-sawing machine comes along. It is a two-horse engine aad boiler, mounted on something like a dray, drawn by one large horse. A large buzz-saw stands at the rear end of the dray, and two men will saw up a cord of four-foot wood in ten or fifteen minutes. As they get 50 cts. per cord, fuel to run the engine thrown in, they do very well. The wood is then got into the woodhouse and split as needed. As it "always rains" in Portland, it is one of the fine arts to get the wood dry.

I have never seen in any city such beautiful lawns, and so many of them, as I saw in Portland. The abundant rains, and no frost to make the lawns ever look brown, explains it. I saw hardy roses in full bloom in the open air, in the middle of December. People were making garden and planting peas at the same date. The peas come up and grow more or less all winter; and when spring comes, they push up and make pods very quickly. Cabbage-plants are also set out in the fall, and any time during the winter when most convenient.

I had a very pleasant visit from Mr. D. Kauffman, of Needy, Oregon. He told me of having his bees gather honey from the willow in February, during one season, so they stored in the sections as high as 30 lbs. per colony. The principal honey-plant among the mountains is an evergreen shrub called "fal-lal." Friend Kauffman very kindly presented me, and the friends with whom I was staying, a nice lot of beautiful honey from that source.

There are a good many Chinese in Portland, and many of them, I am told, are men of wealth. For the first time in my life I saw here a Chinese woman on the streets. She was richly dressed, much as the men dress, only she wore nothing on the head. I am told they are always bareheaded when on the streets, no matter what the weather is. Judging from a single specimen, I should call Chinese women very graceful and pretty.

As I moved out of Portland (Dec. 21) on the way to Seattle, Washington, I was much stirred by the sight of the steamboats on the river. It reminded me vividly of a similar sight when I was attending school, almost 40 years ago, on the banks of the Ohio River. Oh what beautiful green fields, right here in winter time! Yes, and gardens too, and orchards, where the apples are not yet picked.

Very likely almost everybody knows that there are ferryboats large enough to carry a whole train of cars; but I shall have to confess I had no thought of such a thing until our train actually ran on such a ferry to cross the Columbia River. There were three tracks on the ferryboat, and the train was divided into three sections. The boat was so large that the weight of the locomotive and train hardly sank it perceptibly. As we left the ferry I saw men pulling sturgeons out of a fishing-boat, many of the fish being as large as the men who raised them with pulley and tackle.

The Columbia River salmon is a most delicious fish, as I happen to know, for the doctor told me, when I needed some solid food besides my milk-and-broth diet, to eat fresh fish. Seattle is another new and pretty city of about 50,000 inhabitants.

A great deal of fault is found with railroad companies, express and telegraph companies, etc. I want to say a word of praise for the latter. On Monday, Dec. 21, my good wife felt as if she could stand it no longer to think I was sick with my old fever, and she not near me, so Ernest sent me the following telegram: "Mother wants to go, if you are willing. Wire answer."

I do not know what time Monday this was sent, but it went to Portland; and, finding I had gone on, it traced me to Seattle, found the hotel where my name was registered, and at twenty minutes before midnight the clerk wakened me and handed it in my door. Before the clock had got to 12 I wired back, "I am quite well now. Better await letter from me."

Well, even at that hour of the night the telegraph company sent a messenger to receive and send off my answer, without charge. That is, they made no charge for sending a boy at that time of night to get the telegram. The hotel clerk simply pressed a button, and this notified the office to send a boy to get an important message. For $2.00, or about that sum, my family in Ohio called to me in Seattle, Washington, to know "how I was." The hotel clerk woke me up, and I called back to them, nearly 3000 miles, "I am quite well now." Isn't it worth something to live in a country where such a thing is possible? And is it not true that we have a good many people who accept responsibility, and discharge these duties faithfully and well? I am proud of our people, and I feel it a pleasure to pay them for their faithful service.

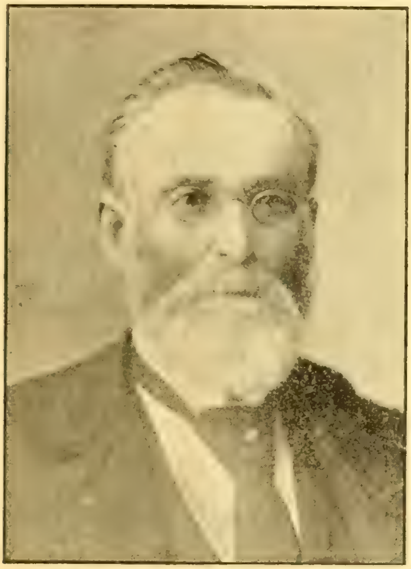
Probably most of our readers have heard of H. A. March, of Fidalgo, on Puget Sound, Washington. Years ago friend March gave us some valuable facts on how far bees fly, and these facts are embodied in our A B C book. Later friend M. has become famous as almost the only man in America who grows successfully, on our shores, cauliflower seed. Right near my elbow, while I write, stands a bag of this seed, worth about $1000; and there is more than double this amount in cabbage and cauliflower seed in the house; but I haven't got quite ready yet to tell you about friend March's gardening. While in Salt Lake City I received a letter from friend M., saying he should feel greatly honored if the President of the U. S. should conclude to pay him a visit, and that he would do his level best to make the visit a pleasant one; but that, could he have his *choice*, he *rather thought* he would prefer a visit from *A. I. Root.* Well, this explains why you find me away up here at Seattle, waiting for the steamer "Wasco" to take me to Fidalgo. I was so weak after my sickness that I felt faint when I stepped on board; but something seemed to tell me I was going to find health and strength there. As we pushed out into the waves, which were already running high, I stationed myself near the bow, where I could readily imagine the steamer was a fast horse and I the rider. Reader, if you ever get seasick, try my plan. Look straight ahead, in the direction the steamer is going; brace yourself; lean a little forward, and hold on. I soon began to enjoy it. Sea-gulls were all about us, even flying so close you could look into their eyes. And ducks and geese—oh my! how thick they are up here! There are so many varieties of both, I feared I should never learn them; and then there is a most handsome water-fowl they call "brant." It is about half way between a duck and a goose. Hunting water-fowls is a trade here; and when the day is suitable, the cracking of the guns is heard almost incessantly. Puget Sound is almost alive with ducks and geese, and very often the air is full of them. Sometimes their cackling and singing makes a constant, steady noise. When we got out into the open salt water the steamer rolled and tumbled a good deal; but I rather enjoyed it. We passed one steamboat that had got into a trough in the waves, and she couldn't get out. First her wheel would be clear up in the air, then way down under water. She tried to go back, then ahead, and we left her floundering, with the crew looking out with troubled faces. Soon we made a landing, and then, to get under the shelter of an island, *our* boat started across in the trough of the waves. Oh! but *didn't* she roll and pitch! The waves went right over her, and did the neatest job of washing and scrubbing off the decks you ever saw. Yes, the waters even washed the window where I was looking out, until I couldn't see ahead. It really seemed as if the great steamer had taken a sudden notion to dive, head first, clear down to the bottom of the sound; but just before she got clear under water she would strike something so solid I really thought at first she was bumping her head against the bottom. When I suggested as much, don't you believe my fellow-passengers were rude enough to have a big laugh at my simplicity! "Bumped against the *bottom!*" and then they "haw-hawed" again. Well, it seemed just like a big load in a buggy that makes the springs strike together every now and then. Finally some one said it was the front part of the boat striking the surface of the water, as she came down upon it. The wind increased, and so did my enjoyment, until toward night, when it was so high they tried again and again to tie up at a landing. Somebody said they would have to give it up and go by; but one of the crew said we had *got to land*, for they were out of both wood and water. Well, they finally got her tied up; but when she was loaded, the captain said it was not prudent to start out in such a gale and such utter darkness. Then I discovered that I had eaten three pretty good meals; and after the clerk had stowed me away in a nice warm berth, I forgot about being sick, and went right to sleep.

About 3 o'clock the whistle blew and we pulled loose again. I looked out; and as the moon was shining I dressed and came out to see the rest of the fun. We soon landed at Anacortes, a town of over two thousand inhabitants, where, only *20 months ago*, was an entire wilderness. This is a fair example of the way they get up booms up here in this northwestern country. About a dozen steamers touch at Anacortes every day. They have already two railroads and an electric-motor railway, eleven miles in length. Of course, there has been a wild excitement in selling land and lots for the past year.

I landed at the wharf, went to a hotel, and, as it was at least two hours until daylight, the landlord built a fire for me in the ladies' parlor, and at the proper time gave me a nice breakfast, and charged only 25 cts. for all. So you see these new towns that start up so suddenly do not always charge exorbitant prices. At Seattle I paid 75 cts. for breakfast, and no better, to my notion, than the 25-cent one.

I must not forget to mention that, away up here near the north pole, the days are very short. It gets night about 4 o'clock, and it isn't morning much before 8. Business men, many of them, open their stores at about 9 in the morning. The sun pops up a little, away off in the south, during the middle of the day, and then pops down again. But in the summer time, oh what a difference! Dawn then commences a little after 3 in the morning, and friend March says he can read a paper out in his dooryard until almost 10 at night.

From Anacortes I went 3 miles by rail to Fidalgo, and then I had a mile through beautiful woods of pine and fir to the March ranch I have read about and seen for years, only in imagination. Salt water is everywhere, for this whole country is islands, peninsulas, bays, and sounds. The forest-trees are immense, and the perfume of the firs and other evergreens is wonderfully delicious, especially to one who has been sick. I always love to see running water, and here I found enough of it, as it has been raining so much. The shrubbery and undergrowth are so thick in these woods one can hardly get through unless he follows the wagon-roads. I passed over the summit of Fidalgo Island, and came down on the eastern side. Very soon friend March's garden was before me. While in the woods, however, I was attracted by numbers of poultry-houses that reminded me of Stoddard's "egg-farm." They were right out in the edge of the pine woods, each house neatly whitewashed and just like its neighbor, may be 20 rods away. The hens, mostly Leghorns, were bright looking and healthy, and the cackling going on told of eggs, even if it was the last of December. The floors were all raised a couple of feet from the ground, doubtless to avoid dampness, and padlocks on the doors indicated that things were not managed in a loose way. As I neared the fence that divided the wood land from the garden, I noticed the rain-water running in a series of silt-basins, and from these a series of underdrains led down through his gardens to the beach. Oh what celery greeted my eyes! There are at least 25 or 30 different outbuildings around his home. I passed through the garden, through the apiary, and under a broad low shed at the back of the house. Here I stopped and looked about. An elderly man approached, and I told him I was A. I. Root. You ought to have seen us laugh and talk. Here is friend March, just as I saw him.



H. A. MARCH, FIDALGO, SKAGIT CO., WASH., THE VETERAN BEE KEEPER, CAULIFLOWER-SEED GROWER, GARDENER, AND PROPRIETOR OF PUGET SOUND EGG-FARM.

In less time than I can tell it the whole ranch was at my disposal. I began to take in great breaths of strength and enthusiasm all at the same time. In the first place, for the first time in my life I saw before me a *successful* egg-farm. Friend M. has raised eggs as a business for more than twenty years past. He runs incubators, and hatches over 2000 chicks each year. His 800 laying hens are in about twenty different houses. While all have unlimited range, they all go where they belong, to roost. They are always fed in their houses, and the eggs are laid, also, in nests made in the buildings. They are now getting daily from 150 to 200 eggs; and at 37½ cts. per dozen they more than pay all expenses. I went over, one by one, the different obstacles usually met in keeping poultry by the thousand. Friend M. and his boys have met each drawback, and fought through it. Rats, disease, vermin, wild animals in the woods, etc., are held in check only by "eternal vigilance." It is the same way with his wonderful achievements in market-gardening. Go over his place and talk with him, and you can well understand why he succeeds when everybody else fails.

Let me give you an incident characteristic of the man: When he took a notion, about ten years ago, to raise cauliflower seed he soon found he must have water for irrigation. Back in the woods, on the hillside, he found a weak spring of water. This spring was near a line fence between himself and neighbor. As his means were then limited he made troughs of boards, nailed together and supported sawhorse fashion, to carry the water clear down to his garden. He succeeded, and began to make some money with his seeds. As more water was needed he began opening up the spring until it came clear up to the line fence. At this point his neighbor began looking on and finally demanded $25.00 a year for the water that came out under the fence. Friend March refused to pay it, and the neighbor shut the water off, to bring him to terms. Friend M. "looked the ground over," and found a wet-looking place on his side of the fence, a little further up, so he and his men turned their ditch alongside of the fence up toward this wet spot. They kept going into the hill, until at the upper end they were *14 feet* below the surface. While the work was going on he happened to be going up with his son, and they noticed a great volume of water pouring down the troughs. Supposing the men had probably let it off where they had dammed it up he remarked:

"Al, I would give a thousand dollars for a spring that would give us water like that," and just at this moment the men came rushing down to say they had struck a spring as big as a man's arm. Here was all the water he wanted on his own land, and, behold, his neighbor's little spring had suddenly become dry; for all the water, so it transpired, came from this one big vein. Now he could not only raise all the cauliflower seed he wished, but he could raise cabbages, celery, strawberries, and any thing he wished, on his whole 12 acres of underdrained and enriched market-garden ground. All the underdraining here is done with red cedar, and this 14-foot trench was soon bridged over clear to the spring. A huge tank was then constructed on the upper side of his garden, where the water is warmed up by the sun before putting it on the plants. Our friend had no money to buy iron pipes, and his ground does not lie so he can run the water in trenches, so he lay awake nights, as bee-men often do, studying out his apparatus for irrigation, and this is what he did:

He bought some heavy ducking, or sail cloth, and made his own cloth hose. A whole piece is unrolled, cut from end to end in three equal strips. Each strip is rolled up and made into a hose by double seaming on a sewing-machine. Then he put this cloth hose into a tub containing boiled linseed oil and tar, one gallon of tar to five of oil. The surplus oil is now pressed out by running the hose through a common clothes-wringer, and, when dry, there is oil enough to hold the water. For connecting these cloth tubes, a short tube of heavy tin is pushed into the cloth tube, and tied with a stout piece of twine. To prevent it from slipping apart, a bead is turned near each end of the short tin tube. He has about 2000 feet of this canvas hose, and it cost him only about 2 cts. per foot. He has used some of it for five years, and it has not broken anywhere yet. This is really doing better than rubber hose that cost us about 12 cts. per foot.

To irrigate a field the cloth hose is laid to the point in the lot furthest from the tank. One of his men now takes the end of the hose in hand and thoroughly waters nine rows of plants—four rows each side of him, and the one between his feet. As he gets the ground well soaked he walks backward; and when he gets back to a coupling in the hose he pulls the bow-knot in the string, and drops one length of hose. This he repeats until the nine rows are watered the whole length of the field; then he puts his hose together and waters nine rows more, and so on. A good man will thoroughly soak an acre in a day. When dry enough the cultivator is put on, and then a lump-pulverizer—a machine of March's invention. This machine scrapes all the lumps into the middle of the row, and then mashes them up fine. Is all this too much bother? By and by I will show you a Kodak view of a dozen stalks of his irrigated celery. They are about all *I* should want to carry. I hardly dare tell you what crops friend March *has* secured by his high-pressure gardening; but I will say this: He has, under the most favorable conditions, had a *single cauliflower-plant* give him $5.00 worth of seed. Now, mind you, this has been accomplished only by years of labor with brain and muscle. He has fought insect-enemies with all the insecticides known; and after that, he and his men have gone down on their knees and dug out the worms, one by one, that were gnawing at the vitals of his seed cauliflowers. They cut them off the living stalk, and the plants healed up and bore seed. He never gives up to any foe; and in seed-raising he is so untiring in selecting the very best plants to raise seed from that it is not strange that the experiment stations of almost every State in the Union are reporting that no such seed has ever been tested as his. At present there is probably no other man living in America who is succeeding in raising cauliflower seed. Very likely no other locality is so favorable for the industry. In one of his cold-frames I was shown a single choice head of Wakefield cabbage. This one head is to furnish stock seed for next year. All the seeds it produces are to make heads next year, to be used for seed in 1893. Thus you see how preparation must be made so long ahead for the best kinds of seed. He has three large houses filled with the choicest Golden Self-blanching celery there is, probably, on the face of the earth. I am quite sure there is none in the *world* to compare with it. Ordinary celery is sold for 18, 20, 25, and may be 30 cts. per dozen roots. Friend March gets a *dollar* a dozen, and it is cheap at that. First, he raised a strain of seed that suited him; next, he manured the ground with stable manure and fish guano until the amount of manure under each row suited him. Then he poured on the water until that suited him, and now he gets over *$1000* for the celery that grows on a single acre.

I must not forget a point I got from friend March on the advantage of warm instead of cold spring water for irrigating. After he was satisfied the latter was positively damaging to cauliflower-plants he made his present arrangement for running the water about one-fourth mile in the V-shaped wooden spouts, and then into a storage-tank. The home-made duck hose I have described is attached to this tank. The wooden spouts are supported so high up from the ground that a common wagon easily passes under them the most of the way. The sun and warm air raise the temperature of the spring water to that of the ground by the time it is used for irrigating.

Now a word about his manure: He found on his premises, years ago, a peat-swamp; and every summer, when there is a dry spell, loads of this dried muck are piled under sheds close to his horse-stables, cow-stables, poultry-houses, and, in fact, near all kinds of stock that furnish manure, either solid or liquid, and dry dust is made to absorb every particle. Before spring all the manure is mixed thoroughly, and water enough added to start fermentation. When sufficiently rotted it goes under the rows of celery, as I have explained. In these western regions, when there is a lack of rain in summer time there is an objection to stable manure because it makes the ground dry out quicker, and nothing but plenty of water for irrigation can remedy this, especially where manure is put on in such quantities as market-gardeners use.

GLEANINGS IN BEE CULTURE

A Journal Devoted to Bees and Honey and Home Interests.
Illustrated Semi-Monthly
36 Pages 7×10
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In the multitude of counselors there is safety.—Pr. 11: 14.

We are having plenty of snow and good sleighing. What effect this will have on the honey the coming season will be seen later.

We regret that we are unable to publish the usual installment of Stray Straws at the head of this journal. They are evidently lost in the mails, as Dr. Miller has recovered from the grip. It was too late to wire for another copy, as we were expecting daily that they would surely come. As it is, we put in a valuable article from J. A. Green in their place.

It is with much pleasure that we publish the presidents' addresses, both of the North American and the Michigan State Bee-keepers' Association. Usually presidents' addresses cover about the same old routine, and everybody is glad when they are disposed of. But these two were decided exceptions. They both call attention to interests that are vital to every bee-keeper, and we hope they will be carefully read.

We are glad to announce that the health of the senior editor is improving. He is not strong yet, by any means, but is doing well. Mrs. A. I. Root met him at San Francisco, as per arrangement, and together they will travel for the rest of their journey. In his last letter he was just on his way to attend the bee-keepers' convention at Los Angeles, Jan. 7. We thought for a time he would not be able to attend this meeting. We presume Prof. Cook, as per announcement, was present also.

We have purchased a lot of large signs, which read: "A. I. Root, Medina, O., Manufacturer of Apiarian Supplies." These signs are to be tacked across the sides of the loaded cars as they come from our factory. Our carloads are now beginning to leave the Home of the Honey-bees; and may be if you are on the lookout you may see some of these signs "skylarking" around the country. There is nothing like keeping your name constantly before the public. See?

On page 18, the per cent of the schedule of the marking of the Italian bee, as reported by the committee at the North American at Albany, does not seem complete. The total footing amounts to only 90 per cent. The committee in their hurry failed to notice it. We would suggest that honey-gathering be made 40, and prolificness 20. This will make the footing correct. Mr. T. G. Newman called our attention to the matter.

It has often been said that bee-conventions, so long as we have such excellent bee-literature, are of no value, except the social feature of them. This is partly true; but some of the most valuable and important questions take root in conventions and give food for further discussion through the bee-journals. We refer to the matter of spraying fruit-trees and poisoning bees, grading honey, etc. A convention of bee-keepers can better protest against injurious legislation than all the bee-journals put together.

OUR book review, on page 952, Dec. 1, of Mr. G. R. Pierce's book, "The Winter Problem in Bee-keeping," has called forth much commendation and corroborative testimony. We are unable to give place to all that has been written on the subject, but we will give something more in our next issue. It seems that others have been experimenting in regard to the use of absorbents versus non-absorbents; and the results of experiments so far seem to justify the use of a sealed cover properly protected with packing. We would suggest, that as many of our readers as can, conveniently, test the two side by side. What might be true of one locality might not be of another. Let us see whether non-absorbents are better—that is, give the best results for all localities.

BRO. NEWMAN, of the *American Bee Journal*, seems to deplore the fact that the matter of spraying fruit-trees, as introduced by Prof. Lintner, at the Albany convention, was not expunged from the records. The mere fact that the professor seemed, for a time, to reject the statement of Dadant and Hambaugh as lacking proof, called forth such *overwhelming* testimonies that neither he nor anybody else could doubt that spraying fruit-bloom is decidedly injurious and destructive to bees. Bee-keepers who have not had experience in the matter of spraying have not been positive that it was a damage to the bees. But Prof. Lintner's skeptical attitude has called forth such overwhelming facts that we for one are glad that the matter came up as it did.

A FALSE ALARM; ADULTERATION OF HONEY, ETC.

ON page 22, Jan. 1, S. T. Fish & Co. state that a certain manufacturing firm to whom in past seasons they had sold carloads of honey, after having experimented with granulated sugar found it far superior to honey, since the article manufactured with honey as an ingredient would sour in time. From this language we gathered that it was a bakery firm, and so stated it editorially on page 31 of the same issue. We have just received a letter from S. T. Fish & Co., stating that it was not a baking concern, but a tobacco firm. They say:

> On page 22 you quote us as having said it was a bakery that refused to purchase honey. Now, we did not desire to mention the line of business in which they refused to handle honey this season, since we thought it of no special benefit to the readers; but since you thought the same ought to be given we will set you right in the matter by stating that it was a tobacco firm. No doubt you are aware that a great deal of honey is used annually by tobacco manufacturers; but whenever fault is found they endeavor to remedy by experimenting; and one factory did this in the belief that the honey had soured the tobacco after it had been in the hands of the jobbers. We explained to them that there is a difference in honey, and we regret that any honey was sold them that should not have met with their entire satisfaction.
>
> Relative to the article from M. H. Tweed, on page 32, we quite agree with him; and while we as sellers can not place ourselves in a position open to criticism, we have no doubt that you would be in a position to find more than two firms in the West who make a business of adulteration. We are not of the opinion that you could gain any thing by publishing them; but whenever it is decided to take any action, and we are consulted, we believe we can give you considerable information.
>
> Chicago, Ill., Jan. 8. S. T. FISH & CO.

We shall be very glad to avail ourselves of your assistance in ferreting out this matter of adulteration. The editor of the *American Bee Journal*, who is also manager of the Bee-keepers' Union, of your city, Mr. T. G. Newman, 199 East Randolph St., is the one the most competent to deal with the matter. We suggest that you confer with him at an early day in regard to it.

SNOW, AND ITS RELATION TO THE FAILURE OF THE HONEY CROP.

WHILE we were sitting at the table in the hotel at Grand Rapids it was our pleasure to make the acquaintance of Mr. A. J. Pierce, whose name we have referred to in our convention report. In speaking of the past four or five years of almost total failure in bee-keeping in Michigan, he gave it as his opinion that it was owing to the lack of snow in winter. He believed that it was necessary to preserve the young clover, and also to give it sufficient moisture for its best development. We had never thought of this before; but, as nearly as we can recollect, there has been rather a scarcity of snow for the last three or four winters, in regions where bee-keeping has been almost a total failure. There was no snow last year—at least, none of any account, in Michigan, and a poor season for bees followed. In York State and Vermont last winter they had very heavy snows, and through all that section of country they had a good year for the bees. It might be interesting to have some statistics prepared, to see what relation there is between snow and poor honey years. Possibly there is no relation at all; and what seems to point that way may be only a mere coincidence. Perhaps some of our readers may be able to furnish us some statistics or facts as to whether winter snow has any bearing on the matter.

REPORTS OF BEE-CONVENTIONS IN THE DAILY PAPERS; A NEWSPAPER REPORTER'S VERSION OF ONE OF THE ESSAYS READ AT GRAND RAPIDS.

ON page 45, current issue, President Elwood, in his address, makes an excellent suggestion, to the effect that the secretary furnish newspaper reporters reliable matter for their papers. It is very well known that they do sometimes make ridiculous bungles, and some bee-keepers have been too much disgusted to even turn their hand over to help them. The reports that appeared in the daily papers of Grand Rapids, of the Michigan convention, were very good as a whole; but to show how even the best of reporters do sometimes get things mixed, we will give you an illustration. In our essay on the subject of "Bicycle vs. Horse for Out-apiary Trips" we incidentally referred to the fact that we had on this machine visited bee-keepers in localities in New York State where there were thousands of colonies. In another part of the paper we had referred to the use of the bicycle in visiting out-apiaries, and told how we had gone seven miles to the yard, and returned. Well, how do you think the reporter got it? We failed to secure a copy of the paper for our own use; but as we remember, it was something like this: "E. R. Root has used the bicycle to good advantage. On it he has gone seven miles into York State, and visited thousands of apiaries. He thought the bicycle a good thing for the bee-keeper." A bee-keeper would natually think that apiaries must be pretty thick along that *seven-mile route* in York State, or else that we were greatly given to exaggeration. It's too bad it is not true, for here would have been a grand chance for the advocates of bee-legislation, or priority of location. The reporter had doubtless heard us use the word "thousand" as referring to colonies, and, as nearly as he could recollect, it was *thousands of apiaries.* Whew! This is worse than Alley's version of the North American. We would suggest the propriety of each one, who prepares an essay or paper for convention, writing out a brief digest of it—yes, two or three of them, to hand to reporters. They will appreciate the favor, and will be glad to give a correct version. It is the fault of bee-keepers, not of the reporters, that such garbled notes appear in the daily press. Bee-keepers should avail themselves of the free notices in regard to our conventions; but let us by all means have correct reports.

M. H. HUNT'S NON-BURR-COMB FRAME.

AT the Grand Rapids convention Mr. M. H. Hunt exhibited his non-burr-comb frame. It is a double top-bar, with a bee-space between, and is the same as that suggested by I. H. Ames, Hudson, Mich. (GLEANINGS, p. 204, 1890). with this difference: The upper bar is only ⅞ inch wide, to give plenty of room to the fingers in handling. The lower bar is 1⅛ wide. This. he says, is an absolute prevention of burr-combs, and we do not doubt it. When the matter originally came up, you will remember we were quite enthusiastic on this double top-bar. It answers the purpose of a Hill device in winter, and also allows the enamel cloth to lie flat, and to be sealed on the frames for winter—a very desirable desideratum, by the way. The reason we preferred the thick top-bar was because it is cheaper, and there are fewer pieces; and, barring the Hill-device feature, it was every way as good. Another difficulty with the double top-bar was the trouble of putting in a suitable comb-guide. As Mr. Hunt wires on the perpendicular plan, a comb-guide is unnecessary.

GRADING HONEY.

ON the first page of this issue, J. A. Green offers some good suggestions on grading. Before reading his article, however, our idea was to use the Chicago system as the basis, calling the first grade "Fancy;" second grade "A," and the other grades by the letters of the alphabet in their order. The Chicago scheme of leaving out *color* as a quality in each grade, we thought a good one, leaving the matter of color to be decided entirely by the *kind* of honey. For instance, a fancy buckwheat could come under the highest grade; but the name "buckwheat" would describe a dark honey. But perhaps there is a difficuly here. The general public, and many of the commission houses, probably would not know what is meant by "Fancy" or "A" grade smartweed or Spanish-needle honey; and they would be utterly in the dark as to what would be their respective colors. The trade call all white honeys clover; that is, it prefers to do so, as its customers are not acquainted with the many sources; but when a honey is described as "white," it has some significance. On the whole, then, we would indorse Green's system. It seems to be an improvement on both the Chicago and Albany classifications. We should be glad to have this subject discussed further. It would be a great boon to bee-keepers and honey-merchants if a *national* system of grading could be adopted. It should be broad enough to be free from local interests, and yet be specific enough to cover every sort of honey.

HEAVY VS. LIGHT BROOD FOUNDATION.

MANY of our readers, in anticipation of sending in their orders soon to their supply-dealer, are debating the question whether they shall use heavy or light brood foundation. We have formerly given the advice that, where frames were not wired, to use the heavy brood. As the horizontal plan of wiring described elsewhere is so cheap, and so little labor, every one will find it cheaper and vastly more satisfactory in its results to purchase medium or light brood foundation, and wire, than to purchase the heavy article and not wire. There are a good many bee-keepers who think it is unnecessary to wire; but we fancy that, if they knew they could wire and yet get good combs for *less* money they would do it. While in this connection, we might remark that a certain German supply-dealer is ordering all his foundation-mills made for extra heavy brood foundation. The walls are so deep that the foundation is ¼ inch thick. We have tested this foundation; and while it makes beautiful combs, it is an awful expense. Only about three Langstroth sheets to the pound can be obtained; whereas, of the light brood there are about eight sheets. With the ordinary heavy brood there are from four to five. With these figures before you, considering that light brood costs only six per cent more than the heavy brood, with nearly twice as many sheets to the pound, the reader can figure out for himself which foundation he prefers. It is immaterial to us or to any manufacturer which grade the bee-keepers order. We do, however, want them to look after their own interests.

SUCCESSFUL MAILING OF 12 QUEENS TO AUSTRALIA.

ALONG last September we sent by mail some thirteen queens to different parties in Australia. The reports are now in, and show that twelve of the thirteen arrived alive, and eleven are now successfully introduced. We make extracts from the letters, that will speak for themselves:

> The queen you ordered from G. M. Doolittle arrived safe with six workers alive. R. J. CRIB.
>
> Brisbane, Queensland, Sept. 22.

> I am glad to inform you both queens came through in tiptop condition. They arrived here, and were safely introduced Nov. 14th. You can mention the fact in GLEANINGS, stating that Mr. Bell, of Brisbane, received and safely introduced the queens on my behalf. S. H. BATEMAN.
>
> Redland Bay, Aus., Nov. 22.

> You will be pleased to hear that the three Italian queens mailed by you Oct. 8 were received Nov. 10 all alive and in good condition. In one cage there were two dead workers; in another, six; and in the other, thirteen. They had consumed in each case about two-thirds of their food; and although they were received and introduced in cold wet weather, I was successful with them all. THOMAS DIXON.
>
> Masterton, New Zealand, Nov. 28.

> The queens arrived here on the evening of Nov. 14, so that they were 37 days coming. Two out of your three arrived in good shape; the other one (bees and queen) had seemingly been dead a long time. Out of friend Doolittle's three, only one (queen and two bees) arrived alive, and the queen died in the introducing-cage a few days after. I may say that I lost one of yours in introducing, so that I have only one left out of the six.
>
> Lyndhurst, Victoria, Nov. 25. JAS. MCFARLANE.

> I am happy to be able to inform you that the three Italian queens arrived here quite safe on Saturday, the 14th inst. The only living bee in one of the cages was the queen, and in one of the other cages there were seven alive besides the queen, and in the third one there were only three bees dead, and they were stuck in their food, and that was the cause of most of the deaths, I believe. As soon as they arrived I introduced them by caging them on the comb, as per instructions in the A B C, and yester-

day they had gnawed out and were laying, and, to all appearance, in the best of health; so, in a short time I expect to have all my black queens replaced with yellow ones. I am inclined to believe in the Italian breed. GLEANINGS has a very wide circulation through all the colonies, and no doubt plenty of your readers would import largely from you in queens, only they are afraid of the risk; but if they send about August they will get the queens out in November. That is just the right time to introduce them; and the fact of three out of three being landed in Dubbo to me will show that there is little or no risk in importing them. C. PEARCE.

Dubbo, N. S. W., Nov. 17.

It seems Mr. Doolittle didn't have quite the success we did. It is possible his candy was not just right; but he will get the knack of it if any one can. As it is, we can say unreservedly that the mailing of queens across the ocean, even to half way around the globe, is no experiment, but a success. Our method of preparing the mail packages was described in detail in our Dec. 15th number, page 970.

THE LOS ANGELES CONVENTION.

JUST as we go to press, a note from A. I. Root, addressed to the "folks at home" comes to hand. As we have had many inquiries regarding him, and the condition of his health, we make an extract from the letter, which answers for itself.

The convention is over, and we have had a most splendid time—not a breath of discord. I wanted to write up notes of it; but Prof. Cook makes a vehement protest. He says that, if I don't stop working every day and hour, I shall be little better off here than at home. He advises an apiary out in some of these mountain ranches, and says that, with Mrs. Root to take care of me, I might live to a good old age. Well, I am going to live to a good old age any way, if I continue to eat and sleep as I do now.

While there is little probability that the senior editor will establish an apiary in California for his health, Prof. Cook's advice to husband his strength is sound, and the Roots, big and little, add their hearty indorsement.

OHIO bee-keepers should remember that the State convention meets this year at Cincinnati, Feb. 10 to 12, at the West End Turner Hall, on Freeman Avenue. It is especially desired that those who expect to attend send their names to the secretary, S. R. Morris, Bloomingburg, O. The fact that Charles F. Muth is president is a guarantee that the arrangements at Cincinnati will be complete. Mr. Muth desires us to invite also the bee-keepers of Kentucky and Indiana, as the place of meeting is on the border of three States.

THOSE of our readers who are poultrymen will take great interest in reading the senior editor's notes of travel, especially where he speaks of his visit to H. A. March's.

CIRCULARS RECEIVED.

The following parties have sent us their price list for 1892.

The Berlin Fruit-box Co., Berlin Heights, O.

The St. Joseph Apiary Co., St. Joseph, Mo.

G. B. Lewis & Co., Watertown, Wis.

S. F. & I. Trego, Swedona, Ill.

We have just printed for Colwick & Colwick, Norse, Bosque Co., Texas, their annual catalogue of supplies for the apiary. Early queens a specialty.

John Nebel & Son, High Hill, Mo., open the campaign of 1892 by issuing a neat catalogue of apiarian supplies which the friends will do well to send for. Printed at this office.

We have just printed the annual apiarian catalogue of Ch. H. Thies, Steeleville, Ill.

J. B. Mason, Mechanic Falls, Me., is now ready to mail to his friends his annual catalogue of bees, queens, etc. Printed at this office.

We have just printed a mammoth edition of A. T. Cook's garden-seed catalogue for 1892. It is a curiosity. Send for a copy. Hyde Park, Dutchess Co., N. Y.

CONVENTION NOTICES.

The Ontario Co. Bee-keepers' Association will hold its third annual meeting in Canandaigua, N. Y., Jan. 30, 31.

[illegible] TAYLOR, Sec.

The seventeenth annual convention of the Vermont Bee-keepers' Association will be held in the parlors of the Addison House, Middlebury, Vt., Jan. 27, 28. Programs mailed on application to the Secretary, Marcia A. Douglas, Shoreham, Vt.

The 12th annual convention of the Northeastern Ohio, Northern Pennsylvania, and Western New York Bee-keepers' Association will be held in Ashtabula, O., Jan. 27, 28, in the parlor of the Hotel James. A good program is prepared. The question-box will be a prominent feature. Programs will be sent to all who desire them. All are invited.

GEO. SPITLER, Sec., Mosiertown, Crawford Co., Pa.

The Minnesota Bee-keepers' Association will meet in Owatonna, Minn., on the 20th and 21st of January, 1892. Free entertainment will be provided for those attending by the citizens of Owatonna, and it is expected that the railroads will carry, at reduced rates, those attending. The State Horticultural Society holds its annual meeting at the same time.

Redwing, Minn. W. DANFORTH, Sec.

The Ohio State Bee-keepers' Association will hold its next annual meeting at the West End Turner Hall, Freeman Ave., Cincinnati, Feb. 10 to 12, 1892, beginning at 10 A. M. on the 10th. All local associations should endeavor to meet with us or send their delegates. Those intending to be present will please send their names to the secretary at their earliest convenience. The president, C. F. Muth, will endeavor to get reduced railroad rates, and reduced rates at hotels. The program will soon be issued, and all particulars published.

Bloomingburg, O. S. R. MORRIS, Sec.

SPECIAL NOTICES.

ALSIKE CLOVER SEED ADVANCED.

In order to get some choice alsike to fill present orders, we were obliged to pay more than the advertised price in our list. Counting bags and freight, it cost us about $10 a bushel; and as the demand for this seed is very stiff we should not be surprised to see it go still higher; therefore for the present our prices will be as follows, bags included: 1 lb., 25c; 1 peck, $3.20; ½ bushel, $6.10; 1 bushel, $12.00. If any of our readers have any choice seed to sell, we should be pleased to have them submit samples, and we will write you what we can afford to pay for it. We can also pay a higher price for Japanese buckwheat than we have been offering. Anybody having any to sell will please send us a sample, saying how much they have, and we will make offers.

1890 PATTERN DOVETAILED HIVES ALL GONE.

The thousand old-style Dovetailed hives offered in this column six weeks ago have all been disposed of. We are prepared, however, to furnish you with all you can use of the latest improved hives at catalogue prices, with 3 per cent off for orders this month. It may not be out of place in this connection to say that we have added quite a number of improvements to this hive since we first introduced it three years ago in March. In this less than three years it has become so popular that it bids fair to eclipse any thing before it in the hive line in point of sales. The demand for it is so universal that, practically, all the dealers and manufacturers are offering them for sale. As we are the pioneers in its introduction and improvement, it would seem as though you stood a better chance of getting the latest improved hives by buying of us or one of our dealers. Joseph Nysewander, Des Moines, Iowa; Barteldes & Co., Denver, Col., and Colwick & Colwick, Norse, Bosque Co., Texas, are supplied with our latest hives in carload quantity. We expect to ship very soon to supply F. L. Possen & Co., Portland, Oregon; Jno. Nebel & Son, High Hill, Mo.; Oliver Hoover & Co., Riverside, Pa., and our eastern branch at Syracuse, F. A. Salisbury agent. Besides these, and others who buy in carload lots, there are many others who buy in less quantities to sell again. To all regular dealers who will handle our supplies we make special terms and inducements, sent only to those who apply.

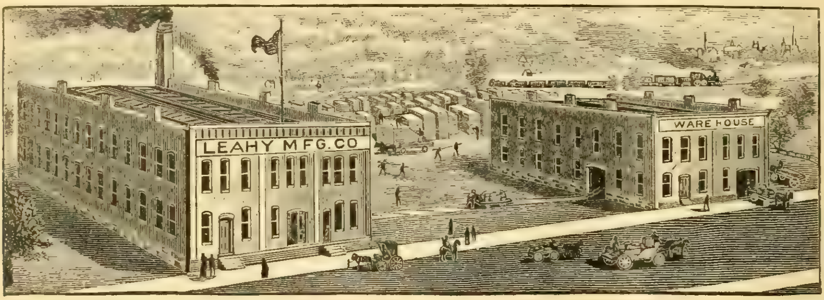
My Catalogue of APIARIAN SUPPLIES for 1892 is free; My Pamphlet, "HOW I PRODUCE COMB HONEY," by Mail, 5 cts.
GEO. E. HILTON, Fremont, Mich.
Please mention GLEANINGS. 2-13db

DOVETAILED HIVES, SIMPLICITY HIVES,

SECTIONS, EXTRACTORS, ETC.
A FULL LINE OF
BEE-KEEPERS' SUPPLIES.
60-PAGE CATALOGUE. 1tfdb

J. M. JENKINS, WETUMPKA, ALABAMA.

☞In responding to this advertisement mention GLEANINGS.



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LEAHY M'F'G CO., Higginsville, Mo.

☞In responding to this advertisement mention GLEANI'GS.

$4 or $5

Will buy ONE HIVE OF ITALIAN BEES AND QUEEN. Simplicity Hive and Frame or Hoffman Closed-End Frame and Hive.

JOHN A. THORNTON,
2-7db Lima, Illinois.

Please mention this paper

FOR SALE.

Root's saw-table, 3 saws, gauges and belt, $25.00, also small grist-mill, cheap. Address for particulars
2d A. A. LEWIS, Waterbury, Vermont.

Syracuse, New York,

FOR ALL OF A. I. ROOT'S APIARIAN SUPPLIES.
FOUNDATION is Our Own Make.
F. A. SALISBURY.

In writing to advertisers please mention this paper. 4tfdb

Cash for Beeswax!

Will pay 25c per lb. cash, or 28c in trade for any quantity of good, fair, average beeswax, delivered at our R. R. station. The same will be sold to those who wish to purchase, at 31c per lb., or 35c for *best selected wax*.

Unless you put your name *on the box*, and notify us by mail of amount sent, I can not hold myself responsible for mistakes. It will not pay as a general thing to send wax by *express*.

A. I. ROOT, Medina, Ohio

CAMERAS CHEAP.

By the death of a relative, as explained in another column, I have come in possession of two very fine photographic cameras. One of them is a Hawkeye, 4x5, with a jointed tripod. It has three dry-plate holders, and three cut-film holders. Besides this, it has a lens that cost originally $35.00, with a triplex Prosch pneumatic shutter worth $10 more. The whole outfit cost originally about $75. The camera-box has been newly finished, and looks like a brand-new instrument. It will also take a roll-holder when desired. I will place my guarantee upon the instrument as being first-class in every respect. It has a far better lens than the average Hawkeye camera. Samples of the work will be mailed upon application. Desiring to give immediate returns to the family of the deceased, I offer this camera for $35 cash. It is a bargain for some one who desires something really fine in this line. Speak quick if you want it, as it will probably be snapped up. I would, under no circumstances, let it go; but, as I have already said, I have two or three other good cameras of my own.

E. R. ROOT, MEDINA, O.

AUTOMATIC COMB FOUNDATION MILLS.

2-7db —MADE BY—

W. C. PELHAM, Maysville, Kentucky.

Please mention this paper.

TAKE NOTICE!

BEFORE placing your orders for SUPPLIES, write for prices on One-Piece Basswood Sections, Bee-Hives, Shipping-Crates, Frames, Foundation, Smokers, etc.

PAGE & KEITH,
14tfdb New London, Wis.

Please mention this paper.

Bees For Sale Cheap!

118 Colonies in L. frame hives, at Chillicothe, Mo. For particulars address

3tfdb J. J. TUCKER, NEVADA, MO.

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WILL EXCHANGE foundation for wax or cash. Also make wax into foundation, when sent to me, at the lowest price in the world. Send for samples and prices to Jacob Wollersheim, Kaukauna, Wis.

OTTUMWA BEE-HIVE FACTORY.

Bee-keepers, look to your interests. Every thing in the line of bee-supplies constantly on hand. Price list free. **GREGORY BROS. & SON,**

1-12d Ottumwa, Ia. South side.

☞ In responding to this advertisement mention GLEANINGS

FOR SALE.—APIARY OF 110 COLONIES Italian Bees, in 2-story Simplicity and new Heddon hives, including 3 lots and houses in this town. This is an excellent location for bees, and a fair market for honey. Also 2 tons of extracted honey for sale. R. HEYMAN,

3-4d Brackett, Kinney Co., Texas.

Please mention this paper.

My Catalogue of APIARIAN SUPPLIES for 1892 is free; My Pamphlet, "HOW I PRODUCE COMB HONEY," by Mail, 5 cts.

GEO. E. HILTON, Fremont, Mich.

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Hatch Chickens by Steam.

IMPROVED EXCELSIOR INCUBATOR

Circulars free.

Will do it. Thousands in successful operation. *Simple, Perfect and Self-Regulating.* Lowest-priced first-class Hatcher made. Guaranteed to hatch a larger percentage of fertile eggs at less cost than any other.

Send 6c. for Illus. Catalog. GEO. H. STAHL, Quincy, Ill.

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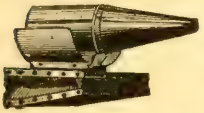
BEST ON EARTH



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Bingham & Hetherington

Patent Uncapping-Knife,

Standard Size.

Bingham's Patent Smokers,

Six Sizes and Prices.

Doctor Smoker,	3½ in., postpaid	$2.00
Conqueror "	3 " "	1.75
Large "	2½ " "	1.50
Extra (wide shield)	2 " "	1.25
Plain (narrow ")	2 " "	1.00
Little Wonder,	1¾ " "	65
Uncapping Knife		1.15

Sent promptly on receipt of price. To sell again, send for dozen and half-dozen rates.

Milledgeville, Ill., March 8, 1890.

SIRS:—Smokers received to-day, and count correctly. Am ready for orders. If others feel as I do your trade will boom. Truly, F. A. SNELL.

Vermillion, S. Dak., Feb. 17, 1890.

SIRS:—I consider your smokers the best made for any purpose. I have had 15 years' experience with 300 or 400 swarms of bees, and know whereof I speak. Very truly, R. A. MORGAN.

Sarahsville, Ohio, March 12, 1890.

SIRS:—The smoker I have has done good service since 1883. Yours truly, DANIEL BROTHERS.

Send for descriptive circular and testimonials to

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"THE BEST" Everybody Admits.

OUR OTHER SEEDS ARE EQUALLY AS RELIABLE

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A.W. LIVINGSTON'S SONS,
BOX 273, COLUMBUS, OHIO.

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IMPORTED QUEENS.

In May and June, each	$2.00
In July and August, each	1.80
In September and October, each	1.60

Money must be sent in advance. Safe arrival guaranteed. Queens that die en route, if returned in the letter, will be replaced by mail, postpaid. No order for less than 8 queens *by express* will be accepted. **CHAS. BIANCONCINI,**

1-11d **Bologna, Italy.**

Please mention this paper. 7d

WHY NOT

Take a hint? See GLEANINGS for January 15th.

A. F. BROWN,
HUNTINGTON, PUTNAM CO., FLA.
Agent Southern Express Co.

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HARTFORD, WIS.,

MANUFACTURES APIARIAN SUPPLIES OF EVERY DESCRIPTION. CATALOGUE FREE TO ALL. SEND YOUR ADDRESS.

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QUEENS!! DRONES!!

Send for price list of Italian Queens, Drones, Hives, Smokers, Foundation, etc. Finest breeding queen, after March 1, $4.00. Tested, $2.00; 3 for $5.00. Untested, in April, $1.00; 6 for $5.00, or $9.00 per dozen by mail. Safe arrival guaranteed. Orders for Queens booked for 20 days or more, 5 per cent discount. Make money orders payable at Clifton.

3tfdb COLWICK & COLWICK, NORSE, BOSQUE CO., TEXAS.

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Honey - Extractor.

Square Glass Honey-Jars,
Tin Buckets, Bee-hives.
Honey-Sections, &c., &c.
Perfection Cold-Blast Smokers.

APPLY TO
CHAS. F. MUTH & SON, Cincinnati, O.

Send 10-ct. stamp for "Practical Hints to Bee-keepers."
Please mention this paper.

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CONVENTION NOTICES.

The Ohio State Bee-keepers' Association will hold its next annual meeting at the West End Turner Hall, Freeman Ave., Cincinnati, Feb. 10 to 12, 1892, beginning at 10 A. M. on the 10th.

The following is the program:

Report of secretary, and routine business, 10 A.M., Feb. 10.

First day, 1:30 P.M.—Essay by Miss Dema Bennett, Bedford, O. "Taking up bee keeping in a general way, and managing the apiary."

Discussion—Which is better for the present bee-keeper—that the number of bee and honey producers be increased or diminished?

7 P.M.—What is a standard section?—Dr. C. C. Miller, Marengo, Ill.

Discussion—How can bees be helped artificially, so that the apiarist will be benefited financially?

Second day, 9 A.M.—Essay by G. W. Demaree, Christiansburg, Ky. "How to prevent swarming during a good honey-flow?"

Discussion—Are absorbents important?

Grading of honey, and bounty thereon.—H. R. Boardman, East Townsend, O.

1:30 P.M.—Packing bees for outdoor wintering.—E. R. Root, Medina, O.

Discussion—Is top ventilation preferable to bottom ventilation during the winter months?

7 P.M.—Paper by Dr. A. B. Mason, Auburndale, Ohio. "Foul brood."

Are closed-end bars of brood-frames preferable to ones?—Dr. G. L. Tinker, New Philadelphia, O.

Third day, 9 A.M.—Discussion—Is honey-dew injurious to bees as a winter feed?

Are artificial swarms less vigorous than natural ones?—O. A. Corey, Frankfort, O.

Discussion—Are bees injurious or are they beneficial to grapes and fruit in general?

Music will be interspersed each day as convenient.

RAILROAD RATES.

The Central Traffic Association of Chicago has agreed to give us 1⅓ fare on all roads leading into Cincinnati, providing we have 100 persons in attendance. Everybody buying a ticket to Cincinnati should ask the agent for a certificate for the convention. This certificate, signed by Sec'y Morris, may entitle the holder to a one-third fare home. It positively will not, if less than 100 tickets are sold, on all branches of the Cincinnati, Hamilton & Dayton Railroad. Hotel rates will be announced at the convention.

Bloomingburg, O. S. R. MORRIS, Sec.

SPECIAL NOTICES.

ALSIKE CLOVER SEED.

We have secured a choice lot of seed since our last, in such quantity and at such a price that we can offer it at the following price till farther notice: 25c per lb.; by mail, 34c; $2.80 per peck; $5.50 per ½ bushel; $10.50 per bushel, or 2 bushels for $20.00, bags included. The time for sowing this seed is near at hand, and we regard it a safe investment to secure your seed at these prices, as it is almost sure to be higher later in the season.

ROOT'S GOODS FOR THE EAST.

Bee-keepers of New York, Vermont, and the East should bear in mind that we have established at Syracuse an Eastern branch where our staple bee-keepers' supplies are kept for sale and prompt shipment. You can save time and freight by ordering from our Eastern branch. We have engaged Mr. F. A. Salisbury to take charge of this business, and he will treat you well. Address all orders, Eastern Branch, F. A. Salisbury, Agent, 1635 Genesee Street, Syracuse, N. Y.

SEED POTATOES.

We would call special attention to our list of seed potatoes. We have a fine stock of all the varieties we advertise. You will notice our list comprises from the earliest to the best of the medium late. The very latest kinds are so much more expensive to raise, on account of the long time they must be cared for, that we do not advise anybody to bother with them, especially in view of the splendid edible qualities of the Puritan and Monroe Seedling. This idea will be better appreciated when it is considered that the Monroe Seedling, Lee's Favorite, and even the Puritan, will, if planted about the first of June (in this region), keep until new potatoes come again.

TO THE FRIENDS OF THE GARDEN.

We wish to apologize for being a little later than usual with our seed catalogue. We are so well pleased with the selection of varieties we offered last year, and our customers report such good success with them, that we make comparatively few changes in the kinds. We offer our friends better seeds this year than we ever have before. The most of them are our own raising, and saved only from carefully selected stock. The new catalogue will be out in a few days now; but if you are in a hurry for your seeds, send on your order; we will fill it from new stock just the same, and send you a new catalogue as soon as they can be got ready. There are a few changes in prices also. Some things do not cost so much as last year, and, owing to failure of crops, and our determination to furnish only the best of seed, a few things will cost a little more. We have a nice lot of plants started and will be ready to ship as soon as the weather will permit. We can ship cabbage-plants, asparagus roots, and potatoes to the South between blizzards if our friends want them right away.

1892.

HEADQUARTERS IN THE SOUTH
—FOR
BEE-KEEPERS' SUPPLIES.

DOVETAILED HIVES MADE OF CYPRESS LUMBER, A SPECIALTY, AT A. I. ROOT'S PRICES.

SPECIAL DISCOUNTS TO DEALERS.

We are so Arranged that we Can Now Give Special Low Freight Rates.

Early 4-Frame Nuclei and Italian Queens.

SATISFACTION GUARANTEED ON ALL TRANSACTIONS.

If you need any Bee-Hives, Frames, Sections, Foundation, etc., send for 14th annual catalogue.

P. L. VIALLON M'F'G CO.,
BAYOU GOULA, LA.

BEES
350 Colonies
1,000,000 Sections,
Foundation, &c.
☞Send for price list.
E. T. FLANAGAN,
BELLEVILLE, ILL.

☞In responding to this advertisement mention GLEANINGS.

Manchester Nurseries.

All of the leading varieties of BERRIES, CURRANTS, and GRAPES. Berry-plants at one-half the usual price. Introducer of SMITH'S PROLIFIC RASPBERRY. Best new black raspberry out. Send postal card for prices, and description of new berry.

EZRA G. SMITH,
MANCHESTER, ONTARIO CO., N. Y.

☞In responding to this advertisement mention GLEANINGS.

HONEY COLUMN.

CITY MARKETS.

ALBANY. *Honey.*—Market very dull on comb honey. Small lots are still coming forward, but there is but very little demand. Extracted in better demand, and stock on hand very small. We quote: Clover, 11@13; buckwheat, 8@10. Extracted, light, 7@8; dark, 6@7. *Beeswax*, 25@26.
Jan. 21. CHAS. MCCULLOCH & CO.,
Albany, N. Y.

BOSTON. *Honey.* The demand for honey is light, and the supply is ample. Price of comb, 14@15. Extracted, 6@7. *Beeswax*, none on hand.
BLAKE & RIPLEY,
Jan 21. Boston, Mass.

KANSAS CITY.—*Honey.*—Demand poor. Supply large of comb, 1-lb. fancy white, 15; dark, 10@12. Extracted, light demand, supply light, white, 7@7½; dark, 5@6. *Beeswax*, none on the market; weather cold with light trade. HAMBLIN & BEARSS,
Jan. 20. 514 Walnut St., Kansas City, Mo.

NEW YORK. *Honey.* No demand; stocks exhausted. Extracted, fair demand, supply moderate. California, light amber, 7½@7¾; Florida, 7@7¼; Buckwheat, 6@6½. *Beeswax*, scarce 27@30.
Jan. 20. F. G. STROHMEYER & CO.,
New York.

CHICAGO.—*Honey.* Honey selling fairly well for season of year, at 15@16 for white comb. Dark sells slowly, and prices are not certain, but range from 12@13. Extracted, without special change, brings 6@7@8. *Beeswax*, 27. R. A. BURNETT.
Jan. 19. 161 So. Water St., Chicago, Ill.

DETROIT.—*Honey.*—Comb honey is selling slowly at 12@14c. Extracted, 7@8. *Beeswax*, in fair demand at 26@27. M. H. HUNT.
Jan. 20. Bell Branch, Mich.

ST. LOUIS.—*Honey.*—White-clover, fancy to choice, 17@18; fair, 14@15; good, 12@13. Extracted, in cans, 7@8; buckwheat, 5½; dark, in bbls., 4½@5.
Beeswax, 25. W. B. WESTCOTT.,
Jan. 20. St. Louis, Mo.

KANSAS CITY.—*Honey.*—Market well supplied. Selling slow. One-pound white comb, 14@15; dark, 9@12. Extracted, white, 7½; dark, 5@6. *Beeswax*, light supply; selling at 23@26.
CLEMONS, MASON & CO.,
Jan. 21. Kansas City, Mo.

FOR SALE.—6000 lbs. extracted honey, in 60-lb. cans.
C. H. STORDOCK, Durand, Winnebago Co., Ill.

FOR SALE CHEAP.—10 bbls. extracted honey mixed with honey-dew. Quality good. Will sell in any quantity desired. Price on application. Sample sent for a two-cent stamp.
EMIL J. BAXTER, Nauvoo, Hancock Co., Ill.

FOR SALE.—About 2 tons of nice granulated honey, in lard cans, holding about 70 lbs. each.
R. HEYMAN, Brackett, Kinney Co., Texas.

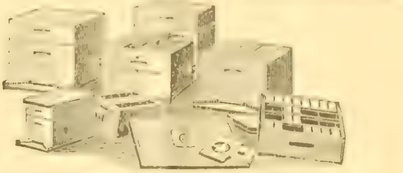
BEE-HIVES AND FIXTURES FOR SALE CHEAP. **WHOLESALE AND RETAIL.**

Send for illustrated catalogue. Send 25 cents for "Amateur Bee-Keeper," by J. W. Rouse, a book designed for beginners, sent postpaid on receipt of price. J. W. ROUSE & CO., MEXICO, MO.
Please mention this paper.

EARLY GOLDEN, UNTESTED QUEENS. $1 00. LARGE, FINE, GENTLE, AND BRED for business. Ready about March 20. Dealers send for prices. Fine tested, $1.50 to $2.00. A few breeders, Italian or Golden, $3 to $5. 3tfdb
J. B. CASE, Port Orange, Vol. Co., Fla.
Please mention this paper.

NO. 1 Sections only $3.00 per M. 20-page price list free. J. M. KINZIE, Rochester, Oakland Co., Mich.

1892 **ROOT'S Dovetailed Hive** **1892**
at his prices. Circular free
1tfd GEO. W. COOK, Spring Hill, Kan.



BEE-KEEPERS WISHING TO USE MY HIVE AND METHODS
Please write for prices on farm right and sample hive. Agents write for terms.
JOHN CONSER, SEDALIA, MO.
Reference First National Bank, Mo.

Wants or Exchange Department.

Notices will be inserted under this head at one half our usual rates. All advertisements intended for this department must not exceed five lines, and you must SAY you want your adv't in this department, or we will not be responsible for errors. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, can not be inserted under this head. For such our regular rate of 20 cts. a line will be charged, and they will be put with the regular advertisements. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To exchange for honey or offers. Victor Safety bicycle, in No. 1 condition, Barnes foot-power saw, Stanley automatic honey extractor, new; No. 5 Novice extractor, 4¼x5½ photographic outfit; queens, to be sent next season.
24tfdb J. A. GREEN, Dayton, Ill.

WANTED.—To exchange pure Scotch collie pups for any thing useful on farm or in bee-yard.
N. A. KNAPP, Rochester, Lorain Co., O.

A SUPPLY DEALER wants prices on sections, foundation, and smokers. W. H. PUTNAM, 1tfdb
River Falls, Pierce Co., Wis.

WANTED.—To trade a large lot of Heddon hives, nicely made and good as new; some with combs complete for honey, now or after crop of '92. Write for particulars. Address D. S. HALL,
21fdb South Cabot, Vt.

WANTED.—To exchange honey or bees, for foundation mill; Platform scale, 400 lbs. or more; or a Rapid rectilinear lens.
2-3d F. W. STEVENS, Moore's Hill, Ind.

WANTED.—To exchange $35.00 saw-table, Stover's Ideal Feed Mill and power combined, and a lot of job type. Want sections, foundation, and honey.
2tfdb O. H. HYATT, Shenandoah, Page Co., Ia.

WANTED.—To exchange one fine old Hopf violin, with fine long bow, for pair of Poland-China pigs. 3-4d W. C. GATHRIGHT, Toccopola, Miss.

WANTED.—To exchange a Columbia bicycle, 48 in., Pope M'f'g Co., Mass., with bell and tool-bag. Cost $90. Will trade for Italian bees.
H. P. KETTERING, Greensburg, Pa.

WANTED.—An apiarist to tend 190 colonies bees; foundation-mill, 2 extractors, and 200 lbs. comb furnished; also wagon and team. Will give one-half bees (increase) and one-half honey.
3-4d E. Y. TERRAL, Cameron, Texas.

WANTED.—Situation with a bee-keeper. I have four years' experience. Address
HENRY EARHART, Courter, Miami Co., Ind.

WANTED—.To exchange bees in frame hives, for pure-bred sheep, poultry, cash, or offers.
C. G. STRONG, Atoka, Tenn.

WANTED.—A situation with a bee-keeper in the west or southwest, by a young man with four years' experience. Address
J. M. WORTHEN, Bonaparte, Iowa.

Free. 28-page **RESTRICTOR** book. How to avoid swarms, brace-combs, and losses in winter. How to get bees into sections in one hour; and rear queens in full colonies, etc., same old fixtures. C. W. Dayton, Clinton, Wis.
24-23db Please mention this paper

EARLY QUEENS,

FROM our branch Apiary in Texas, which is three miles from any other bees, and none but the **best FIVE-BANDED Golden Italian Queens** used to rear Queens and Drones. Our bees are the gentlest, best workers, and most beautiful bees known. Safe arrival and **entire** satisfaction guaranteed. One Warranted Queen, March and April, $1.25; 6 for $6.00. If you want the **best,** send for our circular **at once.** 1-24db

S. F. & I. TREGO, Swedona, Ill.

In writing to advertisers please mention this paper.

BEE-HIVES, SECTIONS, ETC.

We make the best goods and sell them cheap.
Our Sections are far the best on the market.
Our Works turn out the most goods of any factory in the world.
Our goods are known as the best throughout the United States and Europe.
Write for free, illustrated catalogue and price list.

G. B. LEWIS CO., WATERTOWN, WIS.

Please mention this paper. 1tfdb

My 654 Colonies of Italians

Are wintering well, and, as usual, I will sell a limited number of them to reduce stock to the required number. Each hive shipped to my customers will contain a full prosperous colony of Italian bees, with a last year's tested queen, on eight Hoffman frames of brood and honey. As my main object in handling bees is honey, we raise all our queens in full colonies from cells built under the swarming impulse, using the choicest and most profitable stock to breed from.

Safe arrival guaranteed in May and first half of June. For terms please address

3-8db **JULIUS HOFFMAN,**
CANAJOHARIE, N. Y.

☞In responding to this advertisement mention GLEANINGS.

CANADA BEE-KEEPERS

Will save money by purchasing supplies from T. Phillips & Co., Orillia, Ontario, who manufacture all styles of Hives, Sections, Frames, Foundation, Extractors, and Smokers. Also many new things not handled by other dealers. Send for catalogue and samples of foundation, free.

T. PHILLIPS & CO.,
3-5d *ORILLIA, ONTARIO, CAN.*

THE JANUARY REVIEW

Is now out. It contains articles from W. F. Clarke, and Ernest Root, upon "Writing for the Bee Journals." R. L. Taylor shows how much it costs, or *ought* to cost, to produce comb honey. Mr. S. Corneil explains how, with but little trouble and expense, any one may know if his bee-cellar is too damp. R. C. Aikin furnishes a long, interesting account of "Colorado, its Soil, Climate, and Alfalfa Farming, and how the latter furnishes Honey." The inimitable Hasty begins in this issue what is to be a series of articles entitled: "Comments on a Beginner's Day-Book." This "Day-Book" was kept by Mr. Hasty when he first began bee-keeping. E. T. Flanagan tells how he has bridged over poor seasons. Most of the articles are embellished with a portrait of the author. There are the usual extracts and editorials, including an account of the trip to Albany, and a "leader" upon the special topic for the February issue, viz., "Grading Honey." If you would like to see this number, send ten cents, and with it will be sent the December number; and when the February number is out, that too will be sent. The Review is $1.00 a year. The book, "Advanced Bee Culture," is 50 cts. Both for $1.25. All new subscribers for 1892 will receive the December, 1891, issue free. Address

BEE-KEEPERS' REVIEW,
10tfdb *FLINT, MICH.*

☞In responding to this advertisement mention Gleanings.

BEE SUPPLIES RETAIL —AND— WHOLESALE.

Everything used in the **Apiary.** Greatest variety and **largest** stock in the West. New catalog, **54** illustrated pages, free to bee-keepers. **E. KRETCHMER, RED OAK, IOWA.**

In writing advertisers please mention this paper.

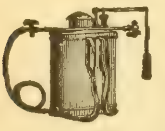
FOUNDATION **AND SECTIONS** are my Specialties. No. 1 V-groove Sections at $3.00 per thousand. Special prices to dealers. Send for free price list of every thing needed in the apiary.
2tfdb M. H. HUNT, Bell Branch, Mich.

☞In responding to this advertisement mention GLEANINGS.

1892 CIRCULAR READY TO MAIL YOU, FREE. Dovetailed hives, Sections, etc. LATEST IMPROVEMENTS in hives and frames. **Discounts** for early orders.
1tfdb **JNO. NEBEL & SON, High Hill, Mo.**

POULTRY. Choice Fowls and Eggs for sale at all times. Finely illustrated circular free. GEER BROS., St. Marys, Mo. 21tfdb

Send for Price List to
R. E. HARBAUGH,
Manuf'r and Dealer in Bee-Keepers' Supplies.
Breeder of Italian and Carniolan Bees and Queens, Light and Dark Colored Ferrets.
25th and Clay Sts., - - - St. Joseph, Mo.



SPRAY YOUR FRUIT TREES AND VINES

Wormy Fruit and Leaf Blight of Apples, Pears, Cherries, Grape and Potato Rot, Plum Curculia prevented by using EXCELSIOR SPRAYING OUTFITS. PERFECT FRUIT ALWAYS SELLS AT GOOD PRICES. Catalogue showing all injurious insects to Fruits mailed free. **Large stock of Fruit Trees, Vines, and Berry Plants at Bottom Prices. Address WM. STAHL, Quincy, Ills.**

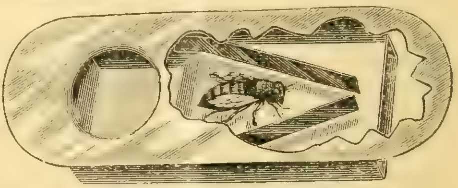
24-10db ☞In responding to this advertisement mention Gleanings.

Porter's Spring Bee-Escape.

We guarantee it to be the best escape known, and far superior to all others. If, on trial of from one to a dozen, you do not find them so, or if they do not prove satisfactory in every way, return them by mail within 90 days after receipt, and we will refund your money.

PRICES:—Each, by mail, postpaid, with full directions, 20c; per dozen, $2.25. Send for circular and testimonials. Supply dealers, send for wholesale prices.

10tfdb *R. & E. C. PORTER, LEWISTOWN, ILL.*



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GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS

ILLUSTRATED SEMI-MONTHLY

PUBLISHED BY A. I. ROOT.

$1.00 PER YEAR MEDINA OHIO

Vol. XX. FEBRUARY 1, 1892. No. 3.

STRAY STRAWS

FROM DR. C. C. MILLER.

DOOLITTLE is to talk bees in the New York *Voice*. He'll have a big audience. They'll have a good man.

THE *British Bee Journal* thinks Messrs. Alley and Pratt are somewhat changeable in their views about Carniolans.

WILL FRIEND DRAPER please tell us *why* "comb-honey production doesn't need it," if extracted honey needs a two-cent bounty?

LA GRIPPE! La Grippe!
You old rip,
How you sip
The very life out of a body!

AUTOMATIC SWARMING-DEVICES (p. 58) were discussed at the Michigan convention. I don't need any swarming-device. My bees swarm too much now.

DOOLITTLE, bees *do* hibernate. I know yours don't, neither do mine; but the kind that work wax with their stings as trowels hibernate any cold night.

RAMBLER takes the "we" and "I" business hard. Even in his dreams it troubles him. Wonder if it's a bad conscience, or if they fed him something wrong at Dowagiac.

THE *Review* has struck out in a new line by giving at the head of each article a picture of the writer. Some of the likenesses are excellent; but mine was taken when I was bad with the smallpox.

TELL A. I. ROOT that they are sending around some of that lumber he saw in Oregon where it will do most good. My house was covered last fall with red-cedar shingles from Oregon. They cost, but they last.

SOMEBODY must have read my paper crooked at Albany to make me object to 4¼x4¼x1⅞ sections. Why, I'd rather have *all* 4¼ sections so thin that no one could be cheated into buying one for a full pound.

THE BIG NEW YORK BEE-MEN, we are told on page 21, are shy of reporting their crops, for fear of some one crowding in on their territory. Wonder if they would object to having legal control of their territory.

NAPHTHALINE is reported in *B. B. J.* as a cure for asthma, and also for whooping-cough. For asthma, a smell of the drug before going to bed, and for whooping-cough the room to be filled with the fumes from ¾ of an ounce placed on a hot metal dish.

EXACTNESS is important in all bee-fixtures, as a general rule. Now, there is one thing that often nullifies all efforts at exactness—warping. Before me is a piece of beautiful workmanship; one piece, however, $\frac{7}{16}$ thick, has warped $\frac{3}{16}$ out of true, and a piece an inch thick shows warp plainly. Can Mr. Warner or any one else tell us the secret of selecting lumber that will not warp?

A. I. ROOT better come home and see to those boys. They've gone and painted the cover of my last GLEANINGS another color, so I didn't recognize it when I took it out of the postoffice. I like the change, though. May be they'll give us a different color each year, so we can tell at a glance to what year any number belongs.

GEORGE WASHINGTON "couldn't tell a lie." I'm different—I can. But I won't. And the plain truth is, that the installment of Stray Straws for the Jan. 15th number of GLEANINGS was not lost in the mail, but was gently reposing in the pocket of my second-best coat, where I had forgotten them. Moral—Don't have more than one coat.

ADAM GRIMM showed me a cellar that he had just built, with a cement bottom, with which he was pleased, but on trial he found it a failure. I had a cement bottom purposely made for bees, but don't use it. Bees winter better in the part not cemented. Before building a new cellar, "A" (see p. 26) might try tearing out his cement floor.

THE HONEY FAILURE is laid to the weather by Hon. R. L. Taylor, in *Review*. He proposes to remedy the matter by dosing the weather with condition powders. I have no faith in such a thing, and warn all bee-keepers not to buy of him. He is a good law-maker and a good bee-keeper, but has no regular medical education. If your weather is out of order, send $1.00, with description of weather, to Dr. Tinker or me.

THE SPACE below frames, two or three inches deep, for winter, is a "pet notion" with the *B. B. J.* That shows that the *B. B. J.* is wise in its selection of pets. As proof of the benefits other than prevention of clogging, the editor says, "What bee-keeper of experience has failed to notice how well second swarms, which have only half filled their hives with combs, will winter, and how healthy and vigorous they will be in spring?"

FEEDING SUGAR to produce honey, in the shape of the Wiley lie, has kept us fighting for years; and now comes a correspondent of the *Review* and gravely raises the question whether, in bad seasons, we may not have good comb honey made by feeding sugar in the right way and at the right distance. The Wiley affair was an attempt at murder; the present effort, coming from one of our best men, in one of our best journals, is an attempt at suicide.

I'M BEGINNING to get mad. There's so much said nowadays about "handling hives more and frames less," and now Hutchinson says that the use of frames is to have us learn the mysteries of the hive, and, "having in a large degree mastered these, there is little need in practical bee-keeping to handle combs." Now, I'd like to handle frames less, but I don't want to handle hives "more." If W. Z. is right, we can learn the mysteries from books, and keep box hives.

THAT NUT of Mrs. Null's on page 25. Struck it wrong, and hit your finger instead of the nut, sister Null. Why, bless your heart, the nut's all right, and there's a good meat in it. So far as I know, Missouri has beaten all other States in getting up a large State society at the start, and it's only because I'm not handy in the use of the English language that I didn't properly express the admiration that I really felt. I think the start made is "pretty good" for any State, even such a central State as Missouri. Now we're friends again, aren't we, Mrs. Null?

BOUNTY ON HONEY.

IS IT DESIRABLE OR FEASIBLE? DO SUGAR AND CANNED FRUIT COMPETE WITH HONEY?

The matter of making an effort to secure a bounty on honey was lightly discussed at Chicago, and it also came up at Albany. The editor, on page 13, seems anxious for light as to its desirability and feasibility. Perhaps it might be better to discuss its justice and feasibility, although, in the highest sense, if it is not right it is not desirable. Unless there is both justice and feasibility, it is not worth while spending time talking about it. If there is justice in the case, I have no great doubt as to feasibility. The simple fact that justice demands a bounty, ought to be enough to secure it. Still, it is not always enough. But I think a sufficient amount of united effort would be effectual.

Therefore, before discussing how we are to obtain a bounty let us first settle conclusively that we *ought* to have it. To say that I should like it is one thing; to say that of right I am entitled to it is quite another. As a premise in the case, we may start out with the fact that a bounty of two cents per pound has been granted to sugar-makers. The truth of its accomplishment is a strong argument as to its being a righteous act, and indeed I do not know that its righteousness has been called in question, although I am not politician enough to know.

Granted, then, that sugar has a right to the bounty, can honey make the same claim? I believe the argument in favor of sugar is, that, when the tariff on sugar was lowered, it let in foreign sugar at a so much lower rate that the home product could not successfully compete with it, and for the sake of encouraging the latter the bounty was allowed. Whether that argument will bear the closest scrutiny I am not prepared to say; but, admitting its correctness, will it, or will it not, apply with equal force to honey? If it can be established that there is competition between sugar and honey, then I can see no reason why the same argument that applies to domestic sugar will not apply to honey. Indeed, if there is any difference, the argument for honey is a little stronger than for sugar, always provided that sugar competes with honey. For, by a direct act of government, sugar has a bounty of two cents per pound, thus giving it an advantage of two cents per pound over honey, whenever the two come in competition. Therefore justice demands that the injury done to the honey market, by putting it in competition with the bountied sugar, be righted by a compensating bounty on honey. The only question in that case is whether the bounty should be two cents per pound, or proportionally greater according to the relative values of the two products. Possibly it should be somewhat according to value. That is, if honey is 50 per cent more than sugar in price, then the bounty on honey should be 50 per cent more on honey, or three cents per pound. But that can, perhaps, not be claimed, for it would be replied that a dollar's worth of honey does not compete with a dollar's worth of sugar, but that a pound of honey competes with a pound of sugar.

Now, let us see how far we have got. If there is no leak in my logic, we have about settled that, if sugar is entitled to a bounty, and if sugar competes with honey, then honey is entitled to a bounty. Now let us consider the question as to whether the price of sugar has any effect on the price of honey; in other words, whether the two are really competitors. Before having written thus far, I spent some time thinking over the problem, and it occurred to me that one who used considerable quantities of both would be a proper person to help decide how far they can be considered competitors. So I went down to the sitting-room, where my wife sat sewing, and, after telling her that bee-keepers were agitating the question of a bounty on honey, I said, "I hardly know which side of the question I am on." "But," said she, "the chance for rascality in claiming a bounty on more honey than has been raised, just like the dishonesty in the pension business!"

"Oh! that has nothing to do with the question in hand," said I, a little nettled at the insinuation that there were dishonest men among bee-keepers. Then, after sitting for a little time looking at the glowing anthracite in the Howe ventilator, I said, "Does the price of sugar have any thing to do with the amount of fruit that is put up, or used for sauce?"

"Oh, certainly! a great deal to do with it."

"What has it to do with it?"

"Why, if sugar were, say, a half higher than it was this year, I wouldn't have put up nearly as much. Get along with less—that's all."

After studying the coal fire a little longer, I asked, "Does the amount of fruit sauce or canned fruit make any difference as to the amount of honey used in a family?"

She answered, somewhat slowly and hesitatingly, "Why, I should think it would." Then in a more decided manner, "Yes, certainly it would." Then, after sewing a few moments in silence, she added, "Because, when you have those things you don't care so much for honey." After sitting a minute, I said, "As it looks to me now, I'm in favor of the bounty," and then went back up stairs.

My wife's view of the case looks reasonable, and she speaks from experience. Grocers have also told me that, when fruit was scarce, honey sold more readily, and vice versa, showing that a diminution in the amount of fruit sauce used helps the sale of honey. Of course, if the high price of fruit helps the sale of honey, so would the high price of sugar, for either one would make the sauce more expensive.

I think it is a very clear case that molasses and syrups are in competition with honey, but I'm not so sure that the prices of these are directly affected by the price of sugar. But where the syrup is home-made, simply melted sugar, as it is often used on hot cakes, then the competition is evident.

Supposing that it may be clearly shown that the allowance of a bounty is the correct thing, it is just possible that another question may arise in something like this form: "Will a bounty, in the long run, be a benefit to the producer, or will it be only to the consumer?"

Marengo, Ill., Jan. 8. C. C. MILLER.

SUGAR VS. HONEY.

THE COMPETITION OF CHEAP SUGAR, JELLIES, AND OTHER DELICACIES, ON HONEY; DISCRIMINATING LEGISLATION AGAINST THE BEE-KEEPER.

The idea has been several times advanced, in these columns and elsewhere, that cheap sugar does not in any way come into competition with comb honey, and that it is only the cheaper grades of extracted honey that suffer from such competition. I think both of these opinions are fallacious, as a little study of the question will show. People do not usually eat honey simply because it *is* honey. Some eat it simply because it is one of the family of sweets for all of which they have a natural craving. This craving can be satisfied just as well with sugar, or some sweet made from it, as with honey. Generally honey is eaten because it is a palatable table sauce, a pleasant addition to the bread and butter and other articles of food. In this direction it has many rivals.

Did you never, as you sat at the table, hesitate as to whether you would take jelly, honey, or plum preserves? Or, perhaps it was a nice dish of cranberries or other stewed or canned fruit, or any of the long line of similar delicacies that divided your liking. Just as you hesitated, the housekeeper hesitates in furnishing her table, and in making her choice, if she is thrifty and careful—and generally she is; she is influenced largely by considerations of economy.

When honey is plentiful and cheap, she may buy of it freely and often; but when it is scarce and high, as we well know to our sorrow, she selects something else to fill its place. When sugar is cheap she puts up large quantities of fruit, with jams and jellies galore. With all this array of good things upon her pantry-shelves she does not see any need of buying honey, unless very occasionally, just as a change. If she is not of the providing kind her family are not allowed to suffer. In every grocery store she may find a tempting array of jellies and of fruit butters at astonishingly low prices; and since sugar has taken the place of the glucose that was formerly a chief ingredient of very fair quality, the growth of the trade in such articles has been enormous of late, and no doubt will continue.

One has only to visit some of the groceries where they ladle their jellies and fruit butters out of barrels, when, only two or three years ago, a few half-pint tumblers constituted their entire stock of such articles, to realize that here is our most formidable rival.

Honey is called a luxury, and must be so considered; but by comparing the sales at the different classes of groceries I have discovered what seems at first sight a little peculiar. It is not the rich nor yet what are called the upper middle classes that use the most honey in proportion to their numbers, but those who are only in comfortable circumstances, the families of artisans and laborers. The former, with their stores of table delicacies laid up, or readily procurable, have felt no need of buying honey but get it only as the fancy strikes them. The latter, living more "from hand to mouth," must buy such things as they are needed. Often in their search for sweets for the table they have found honey as the only competitor to the sugar and molasses barrels. But with cheap sugar, that is being changed; and a great variety of fruit preparations are for sale at low prices. This competition will, no doubt, be stimulated, and become stronger. We do not perceive its full effects yet, because of the scarcity of our product. But let a large crop of honey be put upon our markets, and we should speedily see to what extent we have been injured by discriminating legislation.

The same influences that affect the sale of comb honey are also operative against the sale of extracted honey for table use. It is in another direction, however, that we have most to fear. Within the past three or four years the use of honey in the arts has been much extended. Now, just as we are congratulating ourselves on the market thus gained, comes the unwelcome news that the cheaper sugar is being substituted for the honey. Now, even though it be true that only the poorer qualities of honey have been thus supplanted, this can not fail to have an effect on the general market. When the outlet has been closed for these grades of honey they must seek a market elsewhere. In doing this they must come into competition with other qualities, and tend to force their prices down. It is said, that no particle of matter, however minute, can change its position without affecting the entire universe. So every pound of honey placed upon the general market must affect in some degree the price of all honey sold. So, too, the government can not interfere with the natural channels of trade in any industry without affecting to some extent all others. In this case we are the ones who are pinched. Of course, we squeal. We ought to. Let the bounty on sugar be removed, or let us receive a bounty and so pass the burden on to somebody else.

The point touched upon by A. N. Draper on page 13 might be an important one if it were true that the government placed its stamp upon all packages of sugar upon which a bounty is paid. If I am correct, it does not do this—certainly not to the extent and with the thoroughness that it does in the liquor and tobacco business. I think that, when the producer furnishes satisfactory proof that he has actually produced a certain amount of sugar, he is paid the bounty, and that ends the matter. I see maple sugar in the stores nearly every day; but there is nothing about it to indicate whether it came from a Vermont sugar-camp or a Chicago mixing-establishment. J. A. GREEN.

Dayton, Ill., Jan. 7.

A GOVERNMENT BOUNTY OR TAX ON HONEY.

REASONS WHY IT WOULD WORK MISCHIEF TO BEE-KEEPERS; IT WOULD NOT HINDER OR PREVENT ADULTERATION.

As the subject of a government bounty on honey has been spoken of in GLEANINGS, and a discussion of the subject invited, will you allow me to say a few words in regard to it, and also comment on what was said on page 13 by A. N. Draper? He refers to the connection of the government with the liquor-traffic as an illustration of how a bounty would help the honey-business. That the laws of the national government foster and make more powerful the liquor-traffic, there is no reason to doubt; but that it hinders adulteration, we know is not true, but just the reverse. By protecting it for the revenue, it creates a vast monopoly; and by taxing the manufacture and sale, it enhances the price more than fourfold, and consequently makes adulteration (when it goes into the retailer's hands) very profitable; when the fact is, that, if it were not for the tax that it pays, the original liquor would not be more than 25 cents a gallon for whisky, and at that price there would be no profit in its adulteration. Then, in order to make the liquor and honey business similar, a tax should be put on honey, and the government could put its stamp on the package to show that the tax was paid; but how is the government to know that every package is pure honey when so much disagreement has been shown among the chemists who have analyzed samples heretofore? Honey is already on the protective-tariff list, and now we would have Uncle Samuel put his hand into other people's pockets and take out their money to give to us so much a pound because we are producing a different kind of article from that which they produce. Our government can not get money except by taxing, directly or indirectly, the people; and every dollar paid as a bounty on sugar is taken from the people as a whole and given to a class who produce sugar. The hundred million or so a year that is the government's share in the liquor-business comes from those who drink it, and, in consequence, hundreds of thousands of poverty-stricken wives and children of drunkards are deprived of food and clothing, and the other necessaries of life, that the liquor-monopolists and its powerful partner, "Uncle Samuel," may fill their pockets, while the great proportion of the remainder of the government's revenue is derived from the consumers of the tariff-protected articles imported into the United States. Now, again, I ask, by what principle of justice can the government put its strong hand into *my* pocket and take my money and *give* to somebody else because he is engaged in another kind of business? I make some butter, as well as produce some honey; and as prices have been for a number of years, I have not netted two per cent on the capital invested, with labor thrown in; please tell me why I should not have a bounty of 5 cents per pound on my butter; and then the men who produce pork, beef, wheat, oats, potatoes, and, in fact, every product of labor, should not have a bounty, for the producers all say, and truly, that they can not make reasonable profits on their business. A man who desires the government to take other people's money and *give* to *him* for no equivalent is either very selfish or else he has not looked the matter over carefully; for it indisputably would be a violation of every principle of justice. Let us use our efforts to get stringent laws passed in all of the States against the adulteration of honey, and then get, if we can, executive officers elected who will not neglect their enforcement; and that is the best we can do. VOLNEY WHITE.

Findley's Lake, N. Y., Jan. 7.

THE OBJECT OF A BOUNTY; WHOM IT BENEFITS.

BOUNTY ON HONEY NOT DESIRABLE.

I notice in the Jan. 1st issue of GLEANINGS a letter by A. N. Draper, taking up the topic of a bounty on honey, and treating from a point of view that might for a while result more favorably in some particulars to the producer of honey. (By the way, an outsider would naturally draw the inference that Mr. D. is a producer of the extracted article, as he says comb honey needs no bounty.) As the question of the bounty on sugar is understood in this part of the country, the bounty is not primarily intended so much for the benefit of the party or parties producing the sugar, though, of course, that is where the benefit first alights; but it is to foster and help the growth of an industry that will be an infinite benefit to the country at large. It is also supposed to act as an inducement to timid capitalists to invest enormous sums of money in factories for working up large amounts of material into a product that the people have been sending their money abroad for in vast amounts for many years past; the idea being kept in sight at all times, that, in a very few years, these plants or factories will not only be self-sustaining, but that they will return the money paid them in bounties by the government much larger sums to the people in the form of cheaper sugar.

Now, honey is not a thing that the country in general considers a necessity, neither is it a thing that they should or would be willing to be taxed to pay a bounty on for the benefit of the producer. Honey-producing is an industry that has been developed pretty extensively for a number of years, and that can stand on its own bottom, with a little assistance in the way of a tariff duty on the imported article, which it already has. He says, further, "Let the government stamp what honey is actually produced in this country, and adulteration will cease;" and likens honey-producing to whisky-producing. Has the government ever paid a bounty on the production of whisky? If so, it was before my time. The stamps affixed to the packages of whisky *cost the producers* of that article quite a tidy sum, and I believe the government does not undertake to certify to the purity or wholesomeness of any package to which the stamp is attached; further, liquors which bear government stamps and inspectors' marks are popularly supposed to be as rank and vile mixtures of adulterators as is possible for them to concoct; at least, so we were taught by the truly good prohibition brethren last campaign in Nebraska, so there falls one of his principal points. So long as learned chemists pronounce pure honey from the bees as adulterated with glucose, as has been done on several occasions, so long must consumers take their chances of a mixture; and so long as a cheaper product can be mixed with the genuine honey, to the financial advantage of the mixer, so long will a mixture be on the market unless we get in force a severe and stringent law punishing the seller of a product that is sold for what it is not.

It is really too bad that Mrs. H.'s chances of a crop are getting a trifle risky at Peoria because her field is covered by a city. It has never been considered a function of the government, however, to assume all risks in the business ventures of its citizens, and guarantee them a profit. I can see only one of two remedies in her dilemma. She might persuade the Peorians to go west and uncover her field, or, failing in that, she might come out, possibly, herself with her bees where we have many broad fields yet uncovered by cities, and we would make either Peoria or Mrs. H. *awfully* welcome too.

I am probably wrong, but it seems to me a good deal disgusting—the howl that is ascending to the skies for something to be given to this class and that. It seems to be getting to be a mania to want to pull at the public teat in some manner. Farmers want government to build them warehouses in which to store their crops; and not only that, but to give them the money for their crops, and hold it till they can starve those needing it into giving all they choose to ask for it. Not only that, but, after the government has given millions of farms to the present owners, they now want the government to let them have the worth of their farms in money without interest, and keep their farms too! Bee-keepers want other people to pay them two cents for their honey, and allow them to keep their honey. Sugar-men want two cents per pound for all the sugar they can make. But here is some return—they sell the sugar two cents per pound cheaper than they did before the bounty was granted, so there the people are nothing out for their liberality, while in a few years there is every prospect of their being largely gainers for their foresight. A bounty on honey would probably have a like effect in the course of a very few seasons, as it would largely increase the supply of extracted, without a corresponding increase in the demand, except at a lower price; consequently the bee-keepers would be in the same fix as now, only with an increased number of producers in the field. The trouble with bee-keepers, as I plainly see it, is, that the publications of the craft are too much interested in getting new blood in the business instead of well beating up the ground that is already occupied. They seem to feel it their duty to attempt to convince every individual with whom they come in contact that it is the rosiest business in the universe, and that their whole duty will not be performed until they become bee-keepers. It is the only trade, profession, or business in the universe that makes constant and vigorous efforts to increase its supply and decrease the demand for the products of its labors. I "am a bee-keeper for pleasure" (and profit); but when I constantly try to get others to start in the business, and begin to shout for a little assistance in the way of a bounty for the honey I produce, I am going to decide there is no fun in the business, and resign. At the same time, if the philanthropists insist on putting into our pockets a few extra dollars as they did for the maple-sugar men (which was an outrage), I am not going to make a heavy kick, but it will be a fraud just the same. C. F. Thomas.

Dorchester, Neb., Jan. 7.

ITALIANS IN ITALY.

THOS. B. BLOW, OF ENGLAND, WHO HAS TRAVELED IN ITALY, SAYS THE BEES IN ITALY ARE NOT UNIFORM AS TO COLOR OR MARKINGS.

Dear Mr. Root:—I have read with interest your note to the letter on Italians in Italy. Now, I know that, of all things, you wish to get at the truth in these matters, and also to show where the advantage or otherwise to the bee-keeper comes in.

As to color, I think far too much stress has been laid upon this. What we should strive after is, rather, working qualities. Bright-colored three-banded Italians are very pretty, and all that; but what the bee-beeper wants is not beauty altogether, but work—honey-gathering. There is no question at all but that plenty of bright-colored, three-banded bees do exist in North Italy, and especially are they found (by selection, of course) in the large apiaries of the queen-raisers. The bee of North Italy does vary a good deal in color, and often is very dark. This fact is well known to those who have studied the question on the spot (and, by the way, one of the persons whom Mr. Bianconcini mentions in his letter as an eminent authority, has, I believe, never been in Italy at all, but has been simply an importer of bees, and is not accepted here as an authority in this particular subject). To my own certain knowledge, at one time Cyprians were used in some of the queen-raising apiaries, with a view to improving the color, though I believe this plan is now abandoned, and rightly too. The best observers in Great Britain are, I think, agreed that the Italian bee, as imported at the present time from many queen-raising apiaries, is quite an inferior article to those sent over in the early days; and to such an extent has this opinion gained ground that the importation of Italians to this country has, to a great extent, ceased.

Another point against them has been the suspicion (well grounded, I believe) that a very virulent form of foul brood has been introduced by them. Of this I think there can be no doubt, as I have personally seen the way that bees were collected in Italy in the autumn, for the sake of the queens, which were simply taken from the colonies (bought from the country people), and packed off wholesale—young or old, diseased or healthy. At that time I wrote and protested against this system, and I imagine that it does not now prevail to such an extent, the business being now mainly in the hands of honest queen-raisers who take some pride in the quality of the article they raise—especially the color of it. My own experience—gained by many visits to Italy—is, that it is not from the largest queen-raising apiaries that we get the very finest bees; and the locality, too, is important, the bees from the higher districts being much hardier than those from the hot plains. I could mention the names of several people who certainly produce only a limited number of queens; but each one is a queen of the right sort. Thomas B. Blow.

Welwyn, England, Dec. 30.

[We must admit that there are some dark bees in Italy; and it is possible that there are some dealers who are unscrupulous in the filling of orders; but the stock that we have received in the last ten or fifteen years from Italy has been from only one or two breeders, and their queens have been of the very best—at least, as a general rule they have excelled our home-bred stock, although there are exceptions to the rule. Whatever may be the bees in Italy, the conditions for rearing queens are better there than in this country—at least, results seem to point that way. We quite agree with you, that it is not the golden-banded or highly colored queens that usually give the best results in the production of honey. As you may know, we have been trying to educate the general bee-keeping public toward procuring queens that are bred for business rather than for color. The leather-colored ones have generally given us the best results. In Italy they have not got the rage for queens for beauty—as least, not to the same extent that they have in this country.]

THE ITALIAN BEE IN ITALY.

IS IT A HYBRID OR SIMPLY A VARIETY OF A WELL-KNOWN SPECIES?

Mr. Doolittle propounded the theory at Albany, and I have also seen it elsewhere in his writings, that "the Italian bee is a hybrid." The meaning of the word "hybrid" is, I believe, "mongrel, or the production of two species." In natural history, by "species" is understood the original type, and the changes produced in that original type by climate and different natural surroundings, are called "varieties."

If by the term "hybrid" Mr. Doolittle means that the yellow Italian bee (I use the word "yellow" advisedly) is a variety of the black, or German bee, it's possible that he is correct, though there are several distinguished naturalists who hold that the yellow bee is the species and the black the variety. But if Mr. Doolittle means that the crossing of the two species is so recent that the type is not sufficiently fixed for the Italians to be called even a variety, I contend that he is wrong; for in its natural locality it has a fixed type that has not changed since Virgil first wrote of the yellow-banded bee, as can be shown by comparing the descriptions of Spinola, who, in 1805, called them Ligurians;

of Dzierzon, who introduced them into Germany in 1853, with that given on page 14 in January Gleanings. That there are changes under different climatic and geological conditions, I admit; and it is to be expected, reasoning from the changes that are common in both animals and plants when removed from their natural home (see page 14 as above).

The original location of the Italian bee, I believe to be the mountain-ranges of Northern Italy and Switzerland; hence Spinola's name, Ligurians. Mr. Woodbury, of Devonshire, obtained the first Italians, imported into England in 1859, from M. Herman, of Samin by Chur, Switzerland, who, in a pamphlet published about that time, says: "The yellow Italian bee is a mountain insect, found between two mountain-chains left of Lombardy and the Rhœtian Alps, thriving up to 4500 feet above sea-level. The Alps are their native country."

This, their home, has very marked characteristics—high mountain-ranges with perpetual snow on their summits, while in numerous sheltered valleys there is almost perpetual spring. Such a district would naturally impart peculiar traits to all its inhabitants; and what wonder if, when transplanted to less rigorous climes, a change, improvement or otherwise, occurs, as emphasized by Mr. Herman in his pamphlet quoted before? "The further one goes from the Alps, the less handsome they are, until in lower Italy they are entirely lost in the black species."

Perhaps here may be found the explanation of A. T. Goldsborough's letter in a recent number; and, to carry the point still further, but in an opposite direction, in more ways than one, turn to page 506 and read what J. P. Israel says of the Italian bee in California. There in the mountains it found a country more nearly approaching its native land than elsewhere in America.

I conclude, then, that, as the points which give the Italian bee superiority over others are due to its natural environment, we shall continually need to import fresh stock from its native Alps to get home-bred queens superior to instead of deteriorating from the natural type.

Avery, La. H. Fitz Hart.

THE SALT REMEDY FOR FOUL BROOD.

WILL IT CURE IF PROPERLY APPLIED?

On page 822, 1890, W. L. Coggshall, of West Groton, N. Y., says: "I have 600 colonies of bees. My experience with bees has taught me that, as soon as they begin to fly in spring, and to breed, they require salt; and I know that, if salt is used properly, it will cure foul brood and other diseases."

On page 829, same issue, the editor says: "Friend Coggshall forgets that the salt remedy has been thoroughly discussed at conventions, and carefully tested by scientific men, until it is pretty certain that common salt or salt water has no effect whatever on foul brood."

On page 906, same volume, the editor refers to the alleged salt cure again, and says: "During the whole time that foul brood prevailed in our apiary we used salt in front of the hives, for keeping down weeds. Whenever there was a rain, or even a heavy dew, the bees could be seen in the sawdust around the entrances, helping themselves to their hearts' content. Prof. Cook, or some one else, has reported testing the matter with scientific exactness, and the salt water had no effect whatever on the foul brood."

Now, it seems to me that the better way, in order to discuss the salt remedy intelligently, would be to request friend Coggshall to write out his experience with salt, as indicated, and then publish the same in Gleanings. It seems to me that a bee-keeper who has 600 colonies of bees, and who says that he *knows* salt will cure foul brood, when used properly, ought to know what he is talking about. When he gives his experience in print we may then find that friend C. does not use salt for the cure of foul brood by sprinkling it over "weeds" and "sawdust," but that he has some special way of using it, for he says it must be used properly.

The writer of this is by no means a novice in the management of apiaries afflicted with foul brood. My experience with foul brood began some 30 years ago in western New York, and has continued at intervals from that time to the present. My experience has taught me that a foul-brood apiary can be made about as profitable as a healthy one, and that the disease can also be exterminated therefrom when so desired. But there may be a better way than mine, or any that has been made public, to rid an apiary of foul brood; and this is why I desire to know the details of friend Coggshall's plan, and to have the same published in Gleanings. M. M. Baldridge.

St. Charles, Ill., Jan. 10.

[Mr. Coggshall is a prominent and successful bee-keeper, and we hereby solicit him to reply.]

WAX-MELTING.

WHY FOUNDATION IS MILKY IN COLOR.

There are some who think steam makes foundation milky, and some that heating hot injures wax. Now, steam, if not used right, will make poor foundation, and heating hot will spoil wax; but wax heated in water can not be heated too hot, and steam used rightly increases its value. When melting wax, if steam is used direct, be sure to let all boil together (water and wax) *furiously* for 15 minutes. Then let it stand five hours, and the wax will be perfectly clear—so clear that you can see to the bottom of a dipperful. There is now no water with the wax. If the wax is dipped immediately over into the dipping-can after melting, or if the wax is not heated hot, but only enough to *just* melt it, the wax will be milky, and foundation made from it will look as though full of sand. At our State fair there was 150 lbs. which we clarified for a bee-keeper, and it took the first premium. It certainly would not if it had been sandy. Every one that has rendered wax is acquainted with the refuse on the bottom of the cakes. Some of it is loose, and is easily scraped off. This is in the same condition that the whole cake would have been if it had been heated only just enough to melt, and given a good stirring. If you ever have a cake of wax in this condition, to remedy it put the cake in some water and heat to the boiling-point and boil hard for 15 minutes, then set off the stove, disturbing it as little as possible; cover up so as to keep in a melted state as long as you can. Let it stand for 24 hours, when you can take off a cake of wax just as good as it ever was. Save all the scrapings from the bottom of your cakes, and try this. You will get enough wax from them every year to more than pay for Gleanings.

I wonder whether those who say steam injures wax have melted much that way. We rendered about 1000 lbs. of wax from old combs this last year, and challenge any one to show as nice a lot. It was rendered by steam at a pressure of 80 lbs., blowing directly into the water containing the combs. I don't know of any way to take wax that comes to us, that was rendered in iron utensils, and make it yellow, unless it is the one of thoroughly boiling it in acidulated water. The acid combines with the iron, and sinks to the bottom with the water, leaving the wax free from it, which made it dark in color.

One thing I should like to correct. The acid does not carbonize or burn the organic matter, but combines with the iron, etc., that is in the wax, also with the water, making it easier for the water to soak into the impurities. The hotter the water and wax, the more easily the refuse will settle. In rendering old combs, if we could use something in the place of water that would soak up the cocoons so as to make them heavier than wax, the process of getting the wax from the combs would be very simple.

I have used water and acid, half and half by measure, on old combs, and have succeeded in getting *all* the refuse cocoons and every thing else to settle; but on heating to get the wax to rise, the refuse would come to the top, caused by the steam from the boiler condensing and mingling with what water was there before, and making the refuse lighter. I now have another idea in my head to try. It is, to *wash* out the wax while all is boiling hot. I believe I have something that will work, and something that every bee-keeper can use.

F. A. SALISBURY.

Syracuse, N. Y., Jan. 6, 1892.

So far as our experience goes you are correct, although you are the first one to discover the plan to us. We may add, incidentally, that any foundation, after having been rolled, that is milky, instead of yellow and transparent, may be brought to the latter condition by exposure to the rays of the sun before a window for a few minutes, or by exposure to artificial heat. Any foundation that is used for exhibition purposes can thus be very much improved where otherwise it might pass for a second grade.

COLORADO.

MR. JESSUP EXPLAINS UNCLE AMOS' JOKE.

It is now the 11th of January, and in this time the bees have had four days in which they could enjoy a cleansing flight since Jan. 1, and you may rest assured they enjoyed themselves.

Well, friends, since Uncle Amos has started the joke a going I might as well acknowledge it, and say that it is my treat; but since I neither smoke nor drink, and don't think that any of the rest of the bee-keepers do, I suppose I shall have to set up the candy. To make a long story short, I will tell you how it was I came to ask the senior editor to subscribe for his own journal. We are all liable to make mistakes, and of course I knew he was expected there; but I was so sure that he was another man that I *did* show him GLEANINGS, and asked him to subscribe; for, as Uncle A. I. says, I was very deeply engaged in soliciting subscriptions for it, and I wanted that man to *subscribe* for it. However, it is only a joke, and I am one who can take a joke in as good play as any one, when it is a truthful one.

THE FRATERNAL FEELING BETWEEN BEE-EDITORS.

And right here, while I think about it, is something that I would speak about: It is the general good nature displayed by our brother bee-keepers. Take for, instance, the case of W. Z. Hutchinson and Ernest, as described by W. Z. himself when they were at Albany together, and note the perfect good will and brotherly kindness shown in their travels, and also notice the description of the discussion, too, how their discussion grew "redhot," and still they kept "sweet;" and you might ask why they did. Because it is hard to find a man who has passed the experimental stage (so to speak) of bee-keeping, but has learned the great lesson of obedience and endurance to such an extent that he can at all times control his temper. They have sweetened them with honey, perhaps.

Well, friends, in conclusion I want to say that my dreams of years are fast being realized. I have at last secured me a farm, and am preparing to settle down and make me a home; and I wish to say to my friends and brother bee-keepers in the East, that, when you are visiting in the West just come around and I will endeavor to make your visit as pleasant as it is possible to do. I am located just six miles east of Greeley, on the south side of the Platte River, and my apiary shall be known as the Aurora Farm Apiary. I hope to be able to give you a photo of my home and apiary some time during the coming autumn.

THEO. V. JESSUP.

Greeley, Colo.

THE MAN OR THE HIVE WHICH?

DOOLITTLE GIVES SOME OF THE REQUIREMENTS OF SUCCESSFUL BEE KEEPING.

From the many questions from different correspondents which I receive nearly every day, and from the many who are seeking after the best hive, a hive which will "give big results" every time, it would seem that all one has to do is to procure a Root Dovetailed, a Heddon divisible, Hoffman, Langstroth, Gallup, or some other good hive, to meet with *certain success* in apiculture. No matter how little thought is given to the field, location, or securing the bees in time for the harvest, or how poorly attended to, if we have only a good hive we certainly shall have honey. From the many failures in the bee-business, and the shipwreck ending in disaster of so many who started out joyously when embarking in the business, it would seem as if they depended simply on using, or having in their bee-yard, good hives. While a good hive has very much to do with the results of bee-keeping, the *man* has *much more* to do with success or failure, so far as dollars and cents are concerned. Does a man buy a choice lot of poultry, put them in a nice, well-finished building and inclosure for the same, and let them take care of themselves, expecting a large profit from them? No; the man spares no pains to have them properly cared for, and gives them every chance in his power which will tend toward success. Yet this very same individual, or many very similar to him, will expect a large income from the same number of colonies of bees if they only have them in good hives, no matter whether they do any thing for them once in six months or not. The idea that "bees work for nothing and board themselves" must be banished from our thoughts before we secure much profit from them, and yet this very idea seems to take possession of very many when they embark in the bee-business. *Work*, for a man with brains enough to know that he must leave no stone unturned that tends toward success, is what successful bee-keeping means. A good hive in the hands of such a man is a power which can be used to roll up tons of honey, and show to the masses of the people that there is money in the bee-business. Such a man will have his bees in readiness for the honey harvest whether that harvest comes from white clover, basswood, or fall flowers, and he will do things in just the right time to secure the best results.

I am often asked, "What advantage has a movable-frame hive over a box hive?" *Much*, every way, in the hands of the skillful apiarist, but none at all with the man who does not take advantage of its principles or of the benefits derived by a judicious use of the same, such as knowing in the spring that each colony has sufficient stores to last till flowers bloom, or in the fall that it has plenty of stores for winter, or that each colony has a good prolific queen, or giving stores to the needy by taking them from those having an abundance, etc. What are the movable frames good for if not for the above purpose? and yet we have those all over the land who do not take a frame out of a hive once in a year, yet call themselves bee-keepers, and wonder why they do not succeed in securing some profit from their bees as do some of their more successful neighbors. They have the same hives, they are sure. They are like some persons I know of, who, when asked how the bees prosper, say, "Pretty well, I guess; the hives were all heavy when I set them out of the cellar, and I guess they are yet. Here is a good one. I have lifted it several times, and it is always heavy. That one will give me lots of honey this year." We step to the entrance, and there is scarcely a bee flying, while from others, near by, the working force shows three times their numbers. Upon asking about one of these the owner lifts the hive, and, when finding it much lighter than the other, says, "That is lighter, and I do not think it is as good as the other." We next ask if each has a good queen and plenty of brood, as it is now near the tenth of May, and are met with the reply, "I can't tell; I have not had the frames out of the hive since the bees were put in it. I do not believe in fussing with my bees as some do."

Thus we find plenty of bee-keepers, or those calling themselves such, all over the land. Is it any wonder that we have plenty of candidates for blasted hopes? These men do not seem to realize that it is just this "fussing," as they call it, which makes the success of the prosperous ones about them. I do not want to be understood that a person is to be continually overhauling his hives (as most of the readers of GLEANINGS are aware, from what I have written during the immediate past), that such a person may be successful. No, not that. What I mean is, that, when a gain is to be made by looking inside of a hive, *do it*, and do it at *just the time it is needed*. Tend to the bees in the spring in just the right time; put on the sections in the right time; see that all colonies have good prolific queens at the time they are needed, and so on with all the work of the apiary. Do not keep any more colonies of bees than you can care for and have every thing done in good order. Better results can be secured from twenty-five colonies properly attended to than with one hundred colonies left to care for themselves. What I wish to impress on the mind of every reader of this article is this: That a thorough, practical apiarist will succeed with almost any of the frame hives now in use, while a careless, "go as you please" man, will not pay his way with the best hive ever invented; and it is for the reader of this to know to which of these classes he or she belongs. If to the latter class, *reform* should be the motto to be pasted in your hat.

G. M. DOOLITTLE.

Borodino, N. Y., Jan. 14.

[As usual we quite agree with you in every statement you make. With almost any hive, given a good season, a good bee-keeper, and a good locality, a honey crop and a reasonable amount of profit is sure. Yes, even a box hive, under these conditions, could be made to yield excellent results, for its conditions are, to a certain extent, under the control of the apiarist. M. Quinby made money with it. But while we look at this side we must not overlook the *convenience* of the modern appliances.]

ABSORBENTS IN WINTER.

SOME EXPERIENCE THAT PROVES THEM DETRIMENTAL.

Friend Root:—In your review of the book, "Winter Problem in Bee-keeping," you ask, toward the close, to have the subject thoroughly discussed. Well, while the author, Mr. Pierce, is opposed to absorbents next to the bees, and yourself and your apiarist, Mr. Spafford, seem to coincide with him, I can not, even "for the sake of argument," take the opposite side, but must follow right along in the same line with the author whom you quote, leaving others, whose experience may justify it, to take the other side.

When I first commenced keeping bees, some eight years ago, most of the books I had read, as well as the journals devoted to bee culture, favored absorbents in the form of chaff, leaves, or sawdust, either in cushions or loose, next to the bees, with a cloth of some kind intervening. Accordingly, having no opinion of my own at the time, I thus prepared sixteen colonies for outdoor wintering, using chaff for an absorbent. The bees were in eight and ten frame L. hives, which were mostly contracted to form four to six frames each; these were placed in the center of the hive; and over them, reaching to the bottom-board on each side, was placed a piece of burlap; the spaces left on the sides were then filled with chaff, and on top of the frames was placed a chaff cushion about three inches thick. The hives were then grouped in a row on the south side of a fence, leaving a foot space between hives and fence, and about fifteen inches between the hives. Straw was then piled over and around the hives on three sides—the front end being left exposed and topped out with timothy hay. The straw extended over the fronts of the hives sufficiently to keep them perfectly dry; and in severe weather, planks a foot wide were placed in front to keep the wind from blowing in at the entrances. Snow was not allowed to accumulate in front of hives, and in fine weather the planks were turned down to afford the bees an unobstructed passageway.

Thus cared for, I was confident they would winter perfectly; but what was my surprise, when I unpacked them in the spring, to find eight colonies dead, and the survivors weak, and afflicted with diarrhea! The whole interior of the hives occupied by the dead colonies was damp and moldy, reaching well into the packing, which, in places, was actually wet. When the bees flew in winter the fecal discharges were yellow and unnatural, showing that diarrhea was prevalent among them, and they no doubt died from the effects of this disease, which, I am confident, was brought on by excessive dampness within the hives.

At the time, I thought that too much packing over the hives was the cause of all the trouble. I now think it had little to do with it; for, following on the former conclusion, two years ago I again packed 148 colonies on the summer stands; 120 were in double-walled hives, packed with chaff, a chaff-packed rim placed over the frames, with the chaff piled on till it was six to eight inches deep over the frames. Some of the ten-frame hives were contracted to six and seven frames each, while some of the strongest were left the whole ten frames. The hives faced south, and those contracted had their frames shoved to the east side of the hive; a piece of burlap was put over the frames, reaching to the bottom-board, and the space on the west side filled with chaff. A ten-inch super was placed on each hive, and filled nearly to the lid with chaff.

Now, although the winter was exceedingly mild, bees flying almost every day during December and January, and exceptionally dry, there being no rain of any consequence, the hives were all somewhat damp inside—those with the least chaff over the frames being the dryest. The ten-frame hives, with nearly ten inches of chaff over the frames, were no better off than those in the double-walled hives, while the chaff next the frames was damper—in fact, the burlaps, which were sound and good when put on in the fall, were so rotten that, in most cases, they pulled to pieces when taken from the frames. Still, the colonies were generally strong, excepting three that were attacked with paralysis, blind-staggers, or whatever you choose to call it, and left to go it alone, "petered out."

I am now firmly convinced that absorbents next the bees are a detriment, for the reason that they take up and *retain* the moisture that, from the adverse action of the heat and cold, will accumulate on the inside of hives wintered outdoors in this latitude. I believe they also absorb, and hold for a time, the nitrogenous gases emanating from the cluster; and when they became saturated they precipitate both moisture and poison upon the occupants of the hive. I believe hives should be packed, but that a pine board, and not a chaff cushion, should go next to the bees. W. J. CULLINAN.

Quincy, Ill., Jan., 1892.

[Your experiments only negatively confirm the sealed-cover non-absorbent idea. If you had tried, alongside of those colonies packed with chaff absorbents, others also packed in chaff, but with a sealed cover over them, the experiment might have been more conclusive.]

CONTRACTION.

ITS THEORY, OBJECT, AND RESULTS.

Some years ago, at a convention in Chicago, I was sitting talking with E. J. Oatman before the opening of the session. I told him I would give a good deal to know of some way to prevent swarming when working for comb honey. A little to my surprise he replied, "I would rather have every colony cast a prime swarm." Then putting his hand to one side of his mouth, and speaking in a very low tone, he said, "The secret of it is to hive each swarm on four frames, and let them store for all they're worth, and then double up in the fall." That was the first I had heard of contraction.

Contractionists have been a good deal misunderstood. Some of the theory is easily understood. Suppose a queen is capable of keeping seven frames full of brood. It seems very easy to understand that, if the colony of that queen be kept in a hive of six frames all the year round, when the harvest comes, if the queen keeps the whole six frames filled with brood, the bees can have no help for it but to put all their surplus in the supers for want of any other place. Without taking time to give reasons, let it suffice to say that, in actual practice, a six-frame hive all the year round is a failure, and no genuine contractionist stops his theory in that bound. Yet that is about all the idea a great many seem to have of contraction, that it simply means to keep the room for brood-rearing restricted.

As Doolittle has so vehemently urged, the most important part of contraction is expansion. Use all means to have as strong a force as possible at the beginning of the harvest, and no six-frame hive will do for that. *Then*, when the harvest commences, limit the room in the brood-chamber, and that is the contraction of contractionists.

Contraction or no contraction, few will question the wisdom of getting the strong force ready for the harvest. Beyond this there is room for difference of opinion. Crowding the queen awakens the swarming impulse, unless, indeed, there can be awakened such a greed for storing that queen and all hands may turn their attention in that direction. Is there not naturally a tendency that way in any heavy harvest? Still, there can be no question that unlimited laying room tends to discourage swarming, and hardly more question that a colony that never has the *desire* to swarm is the better for storing, other things being equal. So, on the whole, it is probably right to set down the tendency to swarm as a pretty serious objection against contraction.

"Contraction stops raising a horde that will be too late to be of service in the harvest, and will help consume that harvest after it is gathered." I confess I have been gradually losing faith in that till I have come to the point that I do not believe it at all. Mind, I don't say that I *know* there is nothing in it, only I don't believe there is. The argument is something like this: Suppose the harvest stops July 15. It is clear that all eggs laid in the 21 days next preceding July 15 will raise bees that can not touch that harvest; and as workers do not take to the field till 16 days old, we can add that 16 to the 21, making 37, so there's no use in having the queen lay after June 8, which is 37 days before July 15. But, is it true that bees do not become field-workers till 16 days old? Although that may be what ordinarily happens, is it not governed by the needs of the case? I have seen bees five days old carrying in pollen, and I suspect that those same bees might have been kept from field work till they were much more than 16 days old. Even if they do not go to the fields for 16 days, they can do housework during that time and allow just that many other bees to go, that but for them would be obliged to stay at home. But, theoretically, there ought to be a gain on that harvest, to stop the queen laying to her full capacity 21 days before the cessation of the flow; for during that 21 days none of the eggs will hatch into bees, and it costs honey to feed the brood and bees to nurse it, which bees might otherwise be at work in the field. You see that the argument that bees may work in the field before 16 days old works in favor of contraction at this point.

But then comes the question: "If the queen is limited at this time, will it not work against the future prosperity of the colony?" When I have practiced caging queens, time and again my assistant has insisted that this colony and that colony had swarmed, when I knew that it was nothing but the rapid depletion taking place without any young bees to replace the older ones that had worked themselves to death. Will not such colonies continue to be weaker?—weaker for winter? weaker for the next spring?

But for all that I have said, contraction may be right, and I don't think theory would have made me give it up. I had the theory all straight, and expected good results from it; but somehow the bees were so stupid they didn't seem to see the advantages I was offering them.

Facts are stubborn things, and I don't understand now why my theories haven't worked better. I don't understand why, last year, I didn't get as much from two colonies united at the beginning of the harvest as I had reason to expect from the same two colonies if they had been kept separate. I know that, in all my attempts at contraction, however varied, I have not done as well as when I allowed each colony to have ten frames all the year round. I may as well say here, by way of parenthesis, that I don't believe I want larger than eight-frame hives, but I can't take time just now to explain. The difference in seasons is so great that it may account for all, but I doubt it.

Then there are those two miserable Frenchmen down at Hamilton, allowing their queens to lay all over creation, and yet getting big crops. True, they work for extracted honey, but they have it stored in supers, and don't disturb the brood-nest. I read also of the big crops harvested in France, in the Layens hive with its 20 or more frames, and nothing like the labor given to the contraction system.

To sum it up, contraction makes more work, and I can't feel sure that it makes more honey. I am an expansionist, and it's only fair to say that all true contractionists are; but when it comes to contracting down to any less space than will allow the queen to lay all she will, then I feel, to say the least, that I am in doubtful company. C. C. Miller.

Marengo, Ill.

EXTRACTING FROM SUPERS WITHOUT REMOVING FRAMES.

J. A. GREEN CONSIDERS THE MATTER POSSIBLE, AND SUGGESTS HOW.

I see that, at the Albany convention, there was some talk, though perhaps only in a joking way, of putting a whole super into the extractor at once, without removing a frame. Somewhere back in Gleanings I mentioned this idea, which at that time had shaped itself in my mind. You do not seem to have thought of the practical way to do it. I consider it entirely possible, and I have considerable faith that it will prove practicable to extract honey in this way. If it should prove so it will lead to an entire revolution in the methods of producing extracted honey.

In the first place, the ordinary method of placing the frames in the extractor would probably have to be given up for the radial method. That is, the combs should be placed at right angles to the usual position, so that the sides of the combs are on lines drawn from center to circumference, like the spokes of a wheel. This plan has been proposed before. I am not sure whether it has been tested in actual practice, but I am certain that it could be made to work. The extractor I have in my mind's eye is a large one, in which eight or more supers could be placed at one time. By steam or other power the whole would then be revolved so rapidly that all the honey would be thrown out at one operation, no reversing or sheets of tin between the combs being necessary. An uncapping-machine could be made to run between the combs. Uncapping-machines have been illustrated in the foreign bee-journals, though I can not say as to whether any one uses them.

My plan, though, does not contemplate having any uncapping to do. I would take the honey from the hives before any of it was capped. This thin unsealed honey could be extracted in the manner I have outlined, without any doubt.

By the use of the bee-escape and plenty of empty combs it would be entirely practicable to extract all the honey in a large apiary every day if necessary, leaving the bees free to do their utmost in the way of gathering nectar. Swarming would be entirely done away with, the amount of labor required reduced to a minimum, and, in short, the business of producing extracted honey reduced to a sound business basis.

"What would you do with that raw unripened nectar?"

Well, "there's the rub." Show me how to change this nectar into good, well-ripened honey in a simple, inexpensive way, and I will produce extracted honey at a profit at half the ordinary prices.

I have said but little about this before, because I wanted to experiment for myself before saying much about it. But experiments, to be conclusive, would cost more time and money than I can at present devote to them, so I will ask others to help me in them. Perhaps Mr. Larrabee can take hold of the matter.

Two methods of disposing of the nectar occur to me. One is, to evaporate it by natural or artificial heat into a salable article of honey. The other is to feed it back to the bees for the production of comb honey. It might be kept without fermentation until the honey-flow was over, and then fed back to selected colonies.

I know that, to many, this will look wild and visionary. To such I can only say, "Wait and see."

CANDY FOR FEEDING.

The experience of Mr. A. N. Draper, on page 16, is a common one with those who attempt to make bee-candy for the first time. If the directions in the A B C book are carefully followed, the beginner should have no trouble in making good candy, though he is apt to get it a little too hard. It is wonderful what an amount of water can be stirred up into dry candy. In making candy I would use a kettle large enough to hold a considerable quantity. Dissolve the sugar in as little water as possible—about four parts of sugar, by weight, to one of water. When you think it is almost done, let it boil very slowly while you are testing it. Do this by putting a little into a saucer and stirring it vigorously until cold. Just as soon as you can get it to become hard by stirring it is done, and should not be allowed to boil any more, though it may be set on the back of the stove to keep warm. Take a convenient quantity of this, and stir it until it is just beginning to harden, then pour it into your dishes or other receptacles. You will find that you can make dry solid candy of what would have been only syrup if allowed to cool without stirring. If you want a candy that will not readily dry out, boil it a little longer and add a little honey after removing it from the fire.

It is some time since I made any candy, and I am not sure about the proportions; but I think I have stirred in as much as one-eighth honey, making a nice, soft-grained candy that will keep moist a long time. This makes delicious confectionery. Try it.

The candy made of honey and pulverized sugar is rather the best for feeding; but it is more expensive, as well as more troublesome to make on a large scale.

Friedman Greiner's position on artificial honey is sound. I've got something to say on that point soon.

I am sure, though, he is mistaken about comb honey being damaged when bee-escapes are used; at least, it doesn't work that way with me.

I am surprised to see in the pages of Gleanings such a recipe as that on page 8. And sent by Dr. Miller too! Well, well! What's that yeast for, Dr. M.? And what would be the effect on a man who drank a quart or so after it was "good for use"? J. A. GREEN.

Dayton, Ill., Jan. 6.

[You have hit it exactly; and although some may still be inclined to regard it as a joking matter, a thing beyond possible achievement, we only voice your words, "Wait and see." You will remember that, on pages 683 and 773, Vol. XVI., we experimented quite a little with the extractor on the radial plan—that is, with combs arranged like the spokes of a wheel, how we tried some combs of quite thick honey, said combs having been left in a room near the freezing point. This new scheme of extractor didn't clean the cells as perfectly as one on the ordinary plan; but, oh my! it would extract unripened honey as well as the ordinary extractor. You seem to consider the scheme practicable if you only had some way to ripen the raw nectar. A. W. Osburn, of Cuba; J. F. McIntyre, of California; Thomas Wm. Cowan, of England; L. C. Root, of Connecticut; G. M. Doolittle, of New York, and other bee-keepers of note and large experience, insist that the artificially ripened honey is as good as that ripened by the bees. The two first mentioned, if we are correct, make it a practice to extract the raw honey, and ripen it in large vats. But they have an advantage in locality that many of us do not possess. Now, then, who will have the honor to be the first lucky chap to extract the first ton of honey by this new scheme? If this same chap will then ripen it so that the average consumer can not tell it from the honey just as it comes from the hive, the North American Association ought to give him a medal and a chromo. This may seem like a castle in the air, and perhaps that is all there will be to it; but when there is even a *glimmering* of a possibility of something big, why not investigate?]

JULIUS HOFFMAN'S HOME.

A SKETCH OF IT BY J. H. NELLIS.

Reader, are you discouraged? Has bee-keeping failed to yield the profit you expected? Have your hard work and well-laid plans miscarried? and do you lack the returns you anticipated? Then go with us, in imagination, to the home of a man, who, unaided except by his strong will, untiring energy, and intelligent action, has, in the space of eighteen years, built up two places; who, in this time, has accumulated the paraphernalia to carry on his extensive apiaries; who, at this writing, is thoroughly equipped; has nearly reared a bright, intelligent family; has provided for them the comforts of a pleasant and substantial home, and who to-day, through his ripened and extensive experience, will be able to produce a competence to carry him through his declining years, and give pecuniary aid to his children. This man is none other than Julius Hoffman, whom we had the pleasure to visit and interview a few days ago. Indeed, to an intelligent bee-keeper who, through practice and experience, has a keen appreciation of advanced methods, a visit to Mr. Hoffman's is a feast long to be remembered.

The pleasure of such a visit is greatly increased through the hospitality of Mrs. Hoffman, and by an hour passed in listening to the beautiful and difficult music produced by Mr. Hoffman with his violin, assisted by his daughter Hattie upon organ or piano. To assist the reader, friend Root has produced from a photograph this view of Mr. Hoffman's home.

Unfortunately this is not the best point from which to see the premises, but it was used because it included a number of hives. The reader looks toward the northeast—i. e., the house fronts the south. The bees shown in the engraving are not the home apiary, but a lot brought from out-apiaries, and placed here expressly to show in this picture. The man near the center, in shirt-sleeves, is Mr. Hoffman. To his right stands his daughter Lizzie, a pretty assistant of no mean value. To the extreme right is Mrs. Hoffman, and in the background may be seen other members of the family. At the left appears Mr. Hoffman's faithful man, who has helped for some years.

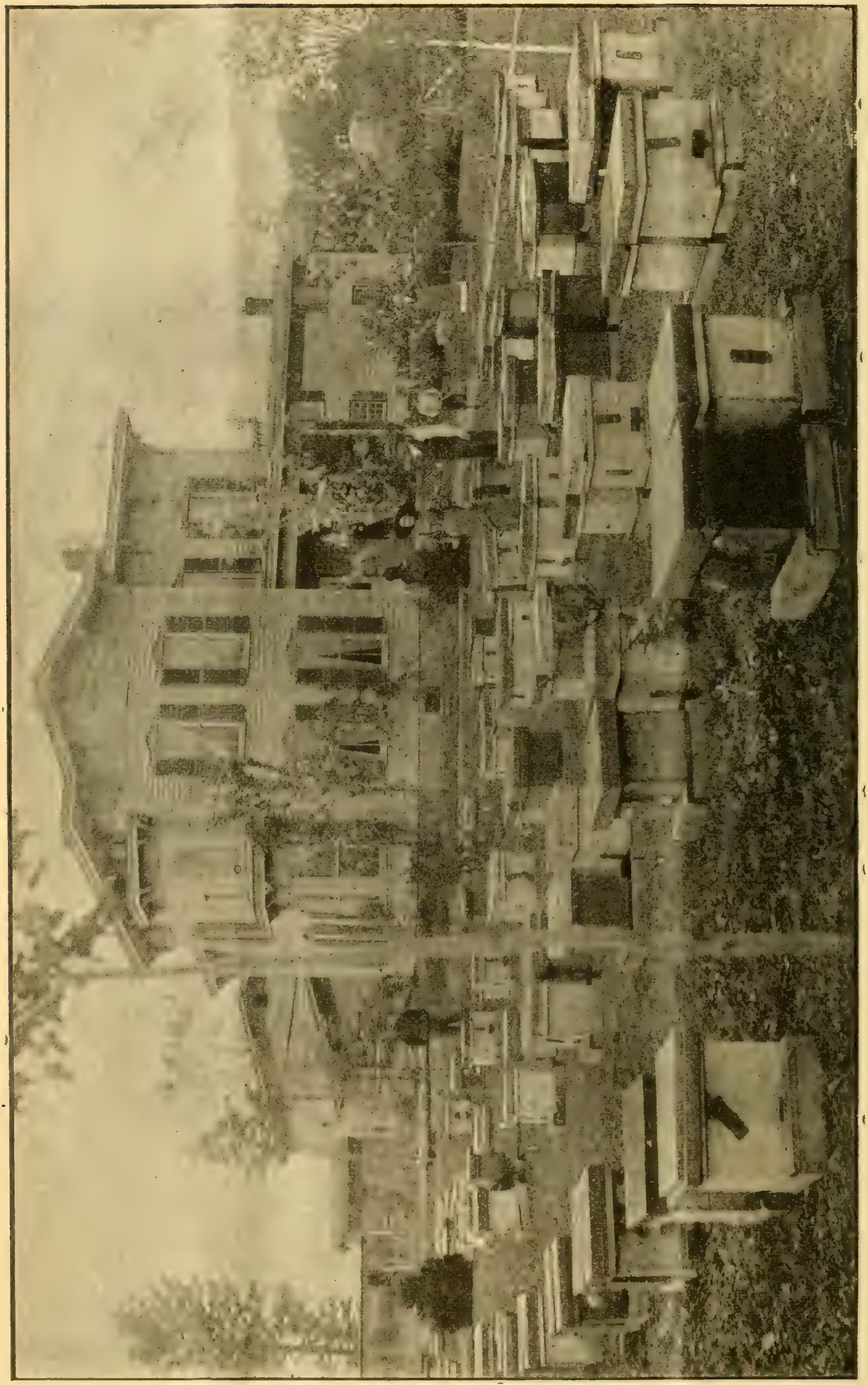
Behind the young man, to the left, can be seen the barn, wagon-house, and farm buildings. To the extreme right, and partially hidden, is the shop and honey-house, a two-story building about 22x32 feet. On the upper floor are stored the box honey, and fixtures used in its production. Underneath is a cellar about 19x29 feet. This cellar is of ordinary construction, about 6 feet 4 inches deep, and has a ground floor, in wet seasons quite damp and muddy. Over a small space, in the vacant end, water stood upon the ground when we visited it.

The temperature of all the cellars is kept as near 45 Fahr. as possible. At this time about 340 colonies are stored in it. The bottom hives are placed upon summer stands (which we will describe later on), and other hives are piled upon these until four tiers deep. The hives are set as close together as possible, and a considerable space at one end of the cellar is occupied by the stairs and a large pile of mangel-wurtzels. Five hundred hives could be placed in this cellar; but this is not advisable, for the temperature gets too high, and good air is not so easily provided. Building-paper covers the floor timbers on the under side, and these are frequently bestudded with huge drops of water. Next season this shop and cellar are to be enlarged to double their present capacity. Under no circumstances would Mr. H. cement or flag the bee-cellars, for he believes that the ground purifies the air and gives off gases beneficial to the bees.

At the middle of January, probably not a peck of bees could be gathered from that cellar-bottom. There is no unnatural hum or indication of uneasiness. To some hives the upper entrance holes were filled with bees to the outer surface.

Mr. H. overhauls and prepares his bees for winter during September and October, and 20 pounds of honey is considered necessary to take a colony through the winter. By lifting the hives he determines the supply. Eight frames are left in each hive, thus providing nearly two inches of space between the followers and ends of hive. Before the hives go into winter quarters, the enamel-cloth sheets used to confine the bees in summer are removed, and several thicknesses of sacking placed over and tucked down into these spaces. Formerly this enamel cloth was left on; but some combs were moldy in spring, which is avoided now. The bees winter equally well whether the enamel cloth is left on or removed. These covers of sacking confine the bees securely and quickly—a great advantage peculiar to the closed ends of the Hoffman top-bars. The hive-caps are not taken into the cellars.

Mr. Hoffman has about 165 colonies under the living-rooms, in his house cellar, and 150 in the cellar of a tenant house, a short distance from his residence. He placed 655 colonies in the three cellars. Two men bring the bees, and Mr. H. places them. The three can put the whole number in the cellars in about ten hours. How they are able to handle this number so quickly



JULIUS HOFFMAN'S HOME, WITH ONE OUT-APIARY TEMPORARILY IN FRONT.

will appear when we describe the hives. During the period from Nov. 15 to Nov. 25, Mr. Hoffman cellars his bees.

If the weather permits—i. e., if no loose snow is upon the ground, and the day is warm, Mr. H. would gladly remove all the bees from a cellar and let them fly during mid-winter. This work can be done for about $1.00 per 100 colonies. When bees remain in cellars four or five months, the mortality arises chiefly from the inability to retain the fæces. If one good fly occurs during mid-winter, Mr. H. is happy, and is then assured that his bees will come out with little or no mortality, and be strong.

Mr. Hoffman assures us that sugar syrup is better than honey for bees in winter; but the sugar syrup is not nearly as good as honey when brood-rearing begins and progresses. Mr. H. is certain that buckwheat honey is superior to white honey for brood-rearing. While sugar syrup is best for wintering, Mr. H. could not be induced to replace the honey with syrup, for the work and expense are too great. He has encountered honey-dew, and finds more difficulty in wintering bees at such times. At the approach of cold weather, honey-dew solidifies, and Mr. H. discovered that, in the damp cellar under the shop, bees wintered much better than in the cellars not so damp. The conclusion: Moisture rendered the honey-dew softer and more acceptable. Mr. H. believes that, when honey-dew is present, or at any time when the cellar is very dry, a supply of water, fed regularly, is worth the cost. He says many of the German bee-keepers supply water during winter and spring. As soon as possible after the bees are set out in spring, the enamel-cloth covers are replaced, for then the moisture should be carefully retained.

Mr. Hoffman scouts the theory that bees void the fæces in a dry state. He never saw any thing to warrant this conclusion, and is satisfied that it never occurs.

Mr. Hoffman has experimented with colonies wintered outdoors packed with chaff and other materials. He has been tolerably successful, but would not practice that system, for it is too expensive in the material used and labor of packing, and in the cost and bulk of the hives and the extra trouble and expense for moving them from place to place.

The home apiary is located some rods behind the shop, so far to the right that the photographer did not include it. In spring this apiary usually contains about 125 colonies, and the out-apiaries, 80 colonies each.

In our next, we will describe the hives and some of their advantages, and explain the methods employed to secure surplus honey and increase.

J. H. NELLIS.

Canajoharie, N. Y.

[Mr. Hoffman is one of those extensive bee-keepers who say but little at conventions, but who nevertheless are wonderfully successful. We presume that there are not a dozen other bee-keepers in the land who have had better or even equal success. His pleasant home and surroundings all bespeak it. He is so modest that we are glad to have him shoved forward. He is an intelligent German, and is therefore thoroughly conversant with the researches and experiments of the bee-keepers of his mother-country; and, besides this, he has thorough familiarity with American bee-literature; and hence, coupled with his large experience, he is able to speak with authority on many subjects. Mr. Nellis has touched upon many things that possibly the reader might like to know more about. If so, please let us know, and we feel sure that he will feel glad to give us the desired information. There is one point which may interest some of the readers; and that is, that Mr. Hoffman has success in wintering in *damp* cellars. Many of us have concluded that dampness is decidedly deleterious in cellar wintering; and yet we have a good many reports of indoor wintering where the cellars were "reeking with dampness." This would be a good topic to discuss, now that our bees are in the cellar, when we can make close observations.]

MELILOTUS ALBA, OR SWEET CLOVER.

HOW IT RESTORES FARM LAND; VALUABLE TESTIMONY FROM THOSE WHO ARE NOT BEE-KEEPERS.

You ask for more testimony from the South on the subject of sweet clover. About a year or more ago I sent an extract from a letter by Prof. Tracy, of our A. and M. College, to GLEANINGS regarding the value of sweet clover as a forage plant, from experiments derived in the cultivation of about 160 acres of it, on the college farm, in which, both for pasture and hay, he gave it high praise; but in that letter he advanced the doubt as to the plant flourishing on other than limestone soils. I now have the pleasure of handing you a communication from General S. D. Lee, president of the same college, to the *Stockman and Farmer*, giving his personal experience with it as a "forage and restorative crop" on one of his private farms.

Editor Southern Stockman and Farmer:—In reply to your recent note as to my experience with melilotus as a forage and restorative crop, I take pleasure in inclosing a letter of Mr. Emmel Dantzler, of Noxubee County, who has charge of my planting interest in that county. He is a gentleman of large experience, and in the six years he has been associated with me has not made a single failure in crops.

He protested vigorously against planting melilotus; but now, after five years' experience, he is a thorough convert, and is gradually substituting it for red clover, both as hay and as a restorer of fertility to worn lands. The backbone of my plantation, which was about worn out, with this crop (melilotus) is now about the most productive land on the place, and is making 1100 pounds of seed cotton to the acre, whereas it made only 600 pounds three years ago, and 30 bushels of corn, whereas it made only 10 bushels three years ago. I consider melilotus 25 per cent better in restoring fertility than red clover. They have been tried side by side for five years. My mules and cattle prefer melilotus as a hay to clover, and it does not slobber my mules. It furnishes two and sometimes three cuttings the first year's planting, and one good cutting the second year, when it goes to seed. The roots are larger than the roots of red clover; and consequently, when they rot the second year, it drains the land better. Melilotus stands drouth better than red clover, and it grows on poor land, whereas it requires pretty good land to insure a catch of red clover. Mr. Dantzler has had from fifty to one hundred acres each of melilotus and red clover for five years. He is now dropping red clover and increasing acres in melilotus, as all the conditions for hay, restoring fertility, drainage, and more certain crop, are on the side of melilotus.

These facts are true on our prairie lands, and are vouched for only for these lime lands. I regard melilotus as the "God-send" for restoring fertility to our worn prairie lands, and in laying the road for changing from cotton to stock in our system of farming. I can not too earnestly urge our prairie-land owners to try it. My plan has been for five years to keep one-third of my place in red clover, melilotus, and lespedeza, and change crops so as to gradually get all my place in grass every four or five years.

The following letter is from Mr. E. E. Dantzler, Cliftonville, Miss., to Gen. Lee. Mr. D. is the manager of Gen. Lee's plantation.

Dear Sir:—Yours, relative to melilotus, at hand. In reply I would state that I have had five years' experience with it. It should be planted in February, but will do as late as the 10th of April. There should be three-fourths bushel of seed sown per acre to secure a thick stand, but half a bushel does very well. The land should be broken up broadcast, and harrowed well before sowing. The plant seeds the second year, then the roots die—but not until it goes to seed. It has but one superior as a hay crop, which is our lespedeza, and it should be cut for hay when it is about fifteen inches high; after that time it is too woody for good hay. I have mowed it three times in one year, but generally twice.

I find it to be a better fertilizer than either peas or red clover. I appreciate red clover very highly, but have abandoned it entirely since I found the advantages melilotus had over it, both as a fertilizer and hay crop. I had a cut of poor land which would not produce more than ten bushels of corn per acre. I sowed it down in melilotus. I then put corn back in it after running it in melilotus two years, and gathered 28 bushels per acre. Cotton land which made 600 pounds of cotton to the acre makes now 1100 pounds after two years in melilotus. I find it stands the drouth and cold better than any other clover. It is adapted to our black and worn-out white lands. I don't think it will prove a success on our red post-oak land, although I have not given it a fair trial. Any information I can give you about this grand plant, write me and I will cheerfully respond. With kind wishes,

E. E. DANTZLER.

These experiments afford excellent proof of the value of melilotus. The experimental stage has been passed, and the fact seems clearly established. The only remaining questions to be solved in regard to the great usefulness of this clover in the near future are: Will it grow advantageously on other than limestone soils? and if so, will it take hold of *impoverished* lands and restore them as rapidly as will cow-peas and other restorative crops?

I am convinced that it will grow and thrive on soil not of limestone formation, here on our average loam on red-clay foundation, but deep and rich. My experience does not extend to poorer or worn-out land. The small patch I have is as luxuriant as any one could desire, growing to 6 or 8 feet high, and so dense that it is a heavy task to go through it—a solid mass of bloom in its season, and swarming with bees from daylight till dark.

Scattered about on the place where seed have been carried in some way are bunches of it, and many of them on poor red clay with little soil on it; and these bunches of it, while not as tall as on the rich spot where I sowed it, grow 3 to 4 feet, and look green and flourishing, besides yearly getting larger, showing they are more than "holding their own." From this, though I have not tried sowing a plat of poor land to it, I have faith to believe if such soil is well prepared, and some cheap fertilizer like ashes or air-slacked lime is sown broadcast over it before or when the seed is sown, it will catch, and that, if it "catches," it will "hold." I shall give it a fair trial before admitting sweet clover is a failure on poor land.

Unfortunately it blooms here with bitterweed, and for this reason it is hard to get at the facts regarding its honey value, quality, quantity per acre, etc. But I feel confident it would equal alfalfa, if grown to the same extent, and that it would supplant bitterweed with the bees, which seem to utilize bitterweed only when sweet nectar to the extent needed is not available, evidence of which we have every fall by securing nice sweet honey as soon as asters and goldenrod come in, though bitterweed is still in bloom.

One more point I desire to notice regarding sweet clover. The piece of ground I have seeded to it is part of an orchard; and though it has the deepest, richest soil on the place, there seemed to be some property lacking, as the trees grew very slowly, being outstripped four to one by those on very much poorer land. Since the dense clover growth, and without cultivation, which they previously had, these trees have shot up like Jack's beanstalk. The clover roots, aided by the dense mulching on the surface, did the business. For two weeks hogs have been allowed the run of this orchard, and I find they greedily eat both stem and root, having torn the place literally topsy-turvy to get at the roots; and the result will be, no clover crop this year, except from the reseeding.

My crop of honey for 1891 was: 2156 lbs. of extracted from 23 colonies; 146 lbs. of section from 2 colonies—2302 lbs. in all, from the 25 colonies. April and May crop was white; June and July crop was dark, but clear, well ripened, and of good flavor and fine body, and sold at 7 to 7½ cents, and gave satisfaction. I have inquiries for it now at 8 cents, which goes to prove that all honey-dew is not low grade, for this later honey was mixed with honey-dew.

My bees went into winter quarters full, both stories. C. P. COFFIN.

Pontotoc, Miss., Jan. 11.

[Many thanks for the facts that you have presented us. Wherever it can be grown, it would be a great boon to bee-keepers, to say nothing of its enriching farm lands. This fact alone will induce farmers to take hold of it. We hope that bee-keepers who are also farmers will try a small patch, and report. The matter is too important to let go by.]

A SUCCESSFUL AUTOMATIC SWARMER.

A NEW YORK MAN SAYS IT IS NOT A FAILURE.

How about automatic hivers? All total failures, you fellows say; or, hold on! there is Dibbern, who says his device, with a leader from the lower hive to one on top, is all right. Tell Mr. D. I published this exact device in the *American Bee Journal* two years ago. I am inclined to believe it would be folly—yes, foolish—for me to explain how to run successfully three or four yards of bees five and seven miles from home, entirely alone, and have entire control of the swarms—yes, or prevent swarms, and take either box or extracted honey.

"Why, Dibble," you say, "you must be crazy."

"Yes, yes; I am. I have been for 15 years, and am actually getting worse all the time. For 15 years I have been putting into practice all of the different devices—bee-hives, section-cases, clap-traps in general. (Isn't this good evidence?) I am aware that your worthy correspondence for GLEANINGS is mighty good evidence on any and all subjects pertaining to bees; but theory isn't practice. Send some of those fellows over to Middleburgh, Schoharie Co., N. Y., next summer, in June, July, or August, and I will show them how to hive swarms in the absence of the bee-keeper; how to prevent swarming, to a certainty, by the proper control of the queen; how to supersede an old queen, or an inferior one, without losing a moment's time in egg-laying.

These three things I believe are bothering the bee-keepers more to-day than any or all the combined things put together. I am crazy enough to say, and invite your especial attendance for proof, or Rambler's, that, with your hive, eight frames and attachments, such as I am using, and in this locality, knowing the honey resources as I do, it is no longer an experiment with me, but facts proven from practice, in my yards, that these three things are easy, sure, and practicable.

I can't make a speech; I can't write much, and I don't expect to succeed in making the bee-keepers think the moon is made of cheese, as some others do; but come and see us, those who are interested in what I am talking about.

Middleburgh, N. Y., Jan. 4. W. DIBBLE.

[You are just the man we want to hear from, friend Dibble; and we hereby invite you to send us a good photograph, accompanied with a description of your automatic swarming-device. Tell us, also, in another article, how you control swarming, and how you supersede an old queen without losing a moment of time—that is, providing you do not intend to keep it a profound secret, as we presume you do not. Perhaps some of our readers will recognize in Mr. Dibble the bee-man whom we called upon in Schoharie Co., while on our bicycle tour. We arrived at his place about noon, just in time for dinner. We had a very pleasant chat with Mr. Dibble, and found him to be an intelligent and progressive bee-keeper. At the time, we urged him to let his light shine more. When we wrote up our travels we presented our readers with a Kodak view of the swarmer, but no doubt Mr. Dibble has perfected it, and would be glad to show it to the bee-keeping public, as it will be impossible for us all to visit him. We suggest the wisdom of our friend not making his invitation too broad, or he will be swamped with callers.]

GRADING HONEY.

HOW W. C. FRAZIER DOES IT.

Since the North American does not seem to have adopted the classification of the Northwestern at Chicago, nor any thing like it; and as a uniform system of grading would, without doubt, be a great benefit to both producer and consignee, there remains nothing to be done except to suggest methods, and hope that there may be, at some time in the near future, a system to which all can agree. I would therefore offer the following, hoping there may be something in it worthy of attention.

COLOR.

Grade "A."

White honey, clover, basswood, and kindred honeys, which are white or light colored.

Grade "B."

Honeys which are yellow or amber, such as alfalfa, Spanish needle, etc.

Grade "C."

All dark honeys, buckwheat, etc.

CONDITION.

"Fancy."

Combs which are well sealed, straight, and even; sufficiently attached to ship without breaking; combs and sections unsoiled.

"Choice."

Combs well filled, firmly attached; not more than one-fourth of the surface can be travel-stained or unsealed, but may be bulged.

"Family."

All honeys whose condition does not warrant placing them in either of the above grades.

Now, in support of the above I have not much argument to offer, as I think it is simple, not nearly as complex as any that have heretofore been offered; also, by it all honey raised in this country could be graded, and its exact quality known. For instance, the best honey from California would be marked "Fancy B." The regions that produce buckwheat honey would mark their best comb honey "Fancy C." while those who are fortunate enough to secure white honey in first-class style could mark their product "Fancy A." The grade marked "Family" will find a much more ready sale, at a better price, than the same honey would bring if marked 3d or 4th grade. It would not take the honey-producers long to learn that "A" means white, "B" yellow or amber, and "C" dark, and then to grade according to condition; and there is no use in having four or five different grades so that it would take an expert to pack honey. The three grades of condition are enough—"Fancy" for the best; "Choice" for good honey, slightly bulged or travel-stained; "Family" for what's left after the two above grades are taken out. Then the letters can be used for grading extracted honey; as it is graded mostly according to color, they would be as applicable to extracted as to comb.

These suggestions I offer. Others may have better systems; but what we want is a simple system that all can understand, and one that will be applicable to all honeys produced from Maine to California. W. C. FRAZIER.

Atlantic, Ia., Jan. 18.

[You have given us quite a scheme; and although it may not be free from fault it will make a good basis from which to work. All the different systems of gradings need to be thoroughly digested—as somebody says, "wrassl'd with," until we may be able to offer something that will be accepted as satisfactory. The fact that there has been so much discussion of it lately shows that there is great need of something of the kind.]

GLUCOSING HONEY.

HOW IT IS SAID TO BE DONE IN PITTSBURG.

Mr. Root: In GLEANINGS you seem to doubt M. H. Tweed's statement about extracted honey being glucosed. There is no doubt that Mr. Tweed's statement is true in regard to packers or firms that make a business of putting up honey in tumblers and other small packages. The —— —— Co., of Pittsburg, have been selling tumblers with something called honey. They have a piece of comb in them, and filled with liquid. They are not labeled honey or any thing else, but simply a strip of paper round the edge of the lid, giving the firm's name. The way their are labeled is a violation of Ohio law, as it does not say what the contents are, nor where put up. In asking the parties that offer it for sale they always say that is pure honey; that the firm putting it up guarantees it to be pure. I have no analysis made of it to prove that it is not honey; but it has not the least bit of honey taste; on the other hand, the taste is disagreeable to me. I have had samples of a great many kinds of honey, but never had any that tasted as this does. It is not the amount that is sold that hurts the trade; but when a customer who knows what good honey is buys some of this it makes him suspicious of honey. I should like to know the proper way to deal with the parties selling such stuff, and how to prove that it is adulterated. If you would like, I shall be glad to send you a sample. H. G. CAMP.

Winona, O., Jan. 23, 1892.

[We have suppressed the name of the firm for the present, and in the meantime will write and find out what they have to say for themselves. We hereby invite all the testimony you can secure. If this testimony is sufficient to convict, and there are laws in Pennsylvania that will cover such cases, we will see what can be done. Now, we are not yet prepared to admit that honey is being adulterated—at least, by the "hundreds of tons," as averred by Mr. Tweed. We should glad to have bee-keepers all over the country give us the facts, where they have good reason to believe that packing-houses are adulterating. We may not be able to accomplish anything; but if we do this much we shall find whether there is even a belief among bee-keepers as to the adulteration of our product. It just occurs to us that, if there is any adulteration at all, it is because the newspapers have been trying to make us believe that it was done on a gigantic scale, and therefore a few of those who are inclined to adulterate would argue that, if they were not in *good* company, they were in a *large* one. There may be a few concerns that would stoop to such low business.

CLOSED-END FRAMES IN AUSTRALIA.

A SUCCESS WHERE PROPOLIS IS THE WORST.

In your issue of Sept. 15, p. 729, appears a letter from J. A. Green, giving his decision to use half-depth frames closed-end. You express great interest in his letter, in your footnote, so perhaps another on the same subject, although somewhat late in appearing, may be of interest to you and others dissatisfied with the loose hanging frame.

As one of the chief objections raised against closed-end frames has been that of propolis, I should like to say, first, that, in this district, there is an abundant supply of it lying around on the ground and under the remains of the grass-tree, or yuccas, and the bees bestow a liberal share on every crack and joint in the hives. It would compete favorably, I feel confident, for tenacity when cold, and stickiness when warm, with that of Cuba, described in your issue of Oct. 1, p. 769, by Mr. T. O. Somerford. I have tested some 100 hives, with closed-end frames 5$\frac{3}{16}$ deep, alongside of some 50 Simplicity loose-frame hives in this apiary for two years. The frames have 1⅜ end-pieces, ⅞x$\frac{5}{16}$ top-bars; ⅞x ¼ bottom-bars, with bee-space back and front of the end-bars, frames hanging, top-bars 19⅛ long. With these frames closed up by two iron thumbscrews and a dummy, I have no more difficulty individually than in moving any individual frame in the Simplicity hive. One turn of the screws gives about ⅛ to $\frac{3}{16}$ side play; the frame near the center is pried apart from its two neighbors with the fingers easily, in warm weather, and lifted vertically up, and replaced as Mr. Green describes, the adjacent frames being close, 1½ inches apart at most. There are no bees caught between end-bars as the frame descends. Contrary to what Mr. Somerford says, these combs can be put into any position in the hives when replaced, and I take no particular care to put them back, except for other reasons that hold good for every kind of hive. I never have to remove the dummy; and while I can handle a *single* frame of either kind, out and in, in about the same time I can handle a *set* of frames of the closed-end type in any matter that involves disarranging and arranging (or spacing) them again quicker and easier than loose frames. Besides this, many operations, as set forth by Mr. Heddon and others, can be performed upon a *whole* colony at considerable gain in time over a similar one upon loose frames. One occurs to me just now with double force, as I painfully learned the difference to-day. Go to one of these hives in the apiary just now — swarming time — and a nice honey-flow till to-day. The queen has possession of three brood-cases of eight frames each (before swarming). With a chisel the lid is loosened, and the cases over the queen-excluder are lifted off; a few jars and shakes, and a light tap of one corner on the ground, and four-fifths of the bees, Cyprian and Italian crosses, are out before robbers (of which yesterday there were none, but a plenty to-day) can well dive in: the cover is on, and the supers are piled up with others near the honey-room, with a Dibbern horizontal escape-board on top of the pile, to drain out the remainder of the bees. Now open a Simplicity two-story hive of twenty frames. Ten times combs have to be lifted and shaken; ten times the bucket has to be opened, and ten times the robbers dive into the sticky bucket and still open hive, kept open for, say, four or five times the period of the former hive.

But this is not all. The real superiority at this time is proved when the empty combs are being replaced later on. If there is the least slack in the honey-flow with us, the first comb put back, sticky and odorous, means bees bent on stinging. By the time ten are put back and spaced properly, the uproar and stings are to be deplored. On the other we lift the cover with one hand; with the other we put on the case of eight combs, all ready spaced, and close up. In less time than it takes to space two loose frames it can be done. And their advantage (I have not seen it mentioned) is, that full sheets of foundation, about 7 feet to the pound, can be safely used, even in our hot climate, in frames only 5 in. deep; nor do I now wire these frames. The frames in the brood-cases and supers are all alike, as described above. As a recent writer pointed out in the *Bee-keepers' Review*, the *full* advantages of handling hives vs. "frame-handling" can not be realized where foul brood is prevalent. As we have ever to be on the alert here for that enemy, there is considerable advantage that our closed-end-frame hives possess lost to us through the necessity of constantly examining combs.

There are only two advantages that I know of in the loose-frame Simplicity hives. They are made up more quickly from the flat, and cheaper, and the frames are turned a little quicker in the extractor than two small frames, though there is less difference here when used to the small frame than might be supposed. The smaller frames are more speedily capped over, and uncapped too, I find, which compensates for the former advantage.

For building up, disposing of brood at swarming time, without increase, and at all times where hive-lifting and comb-carrying, full or empty, is to be done, my testimony is in favor of the shallow cases of closed-end frames, as being less laborious, tedious, and painful, and more economical of time.

It may be thought an additional commendation when I state that, from 90 hives, spring count, I took 11,000 lbs. of honey, mostly extracted, last season, mostly taken in January and February last. T. BOLTON.

Dunkeld, Victoria, Australia, Nov. 18, 1891.

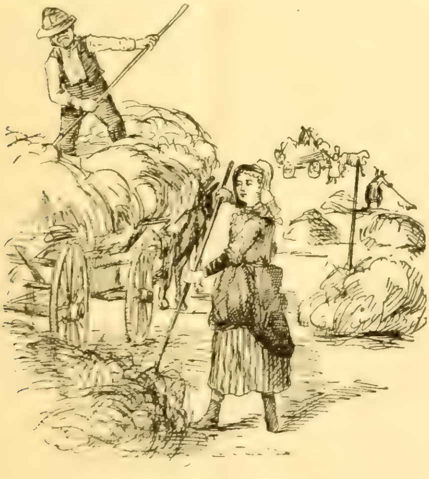
[Propolis is apt to be much worse in warm or semi-tropical countries. It has been stated by some of our correspondents, and no doubt with a good deal of truth, that it is very bad in Cuba—so much of it, in fact, being deposited on the frames and other parts of the hive that fixed distances in the shape of Hoffman or closed-end frames would be out of the question. But several correspondents have stated several times, yourself among the number, that propolis is probably as bad in South Australia as anywhere else on the face of the globe, and yet you say fixed frames are a success notwithstanding. You have stated quite forcibly and clearly why fixed frames are superior to loose frames that require to be spaced. We feel quite sure that bee-keepers who contend that fixed frames can not be handled as rapidly, will find, sooner or later, that they are being left in the race for profit.]

RAMBLE NO. 52.

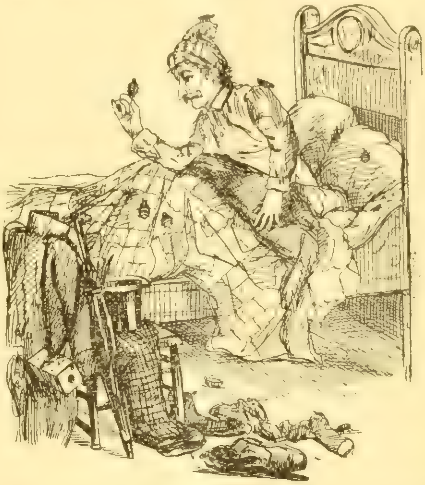
IN CHICAGO.

After leaving Dowagiac the route is over a delightful portion of country. On one side we catch glimpses of the sparkling waters of Lake Michigan, and on the other the level and rich farming lands of Northern Indiana. Wheat-fields were quite common through Northern Ohio and in Michigan; but here they became more numerous and larger; the waving fields were ready for the harvester, and many of these machines had commenced their labors. All available help, including women, were at work, and here I first saw women engaged in the stalwart labor of pitching hay upon wagons, and they seemed to use the pitchfork as dextrously as any man. From appearances they were German families who had brought their fatherland love of work, strength, and thrift with them. The average American can not endure to see a woman at work in the fields; the spectacle of petticoats behind a pitchfork or a hoe is not very suggestive of a very gentle, refined lady, which an American loves to honor. The slavery of the kitchen is, however, quite as great, or even a greater barrier to refinement than a judicious amount of outdoor labor, and its attendant pure air and health-giving exercise.

Soon large gardening areas take the place of wheat-fields; the villages become more numerous and larger, and the traveler knows from these unmistakable signs that he is approaching a large city. Soon the houses become continuous; and as we glide smoothly into a large depot, the breakeman shouts out that talismanic word, "Chicago!" How often this wonderful inland city is brought to our attention by some stirring episode within its borders! How often we think of its marvelous growth, and imagine the greatness of its future! And now for two years or more all eyes in the civilized world will be centered on this city, and will place here on exhibition their best efforts of brain and muscle.


GATHERING HAY IN INDIANA.

Chicago is not dejected at all over the herculean-task before her, but extends the hand of hearty welcome to all new arrivals. A whole delegation of her heterogeneous citizens met the Rambler, and every one was vociferous to shake hands. Selecting a broad-shouldered Hibernian to shake with, I was landed unceremoniously into his elegant shay, and rapidly shayed away, with several other distinguished persons, to the Commercial Hotel. This hotel will accommodate 1000 people, more or less. It is run on the American plan so much for a room, and a good price for what you don't eat. The fatigue of the journey sent me early to bed via the elevator. The Chicago night air, the evening cuisine of the hotel, or some anterior circumstance, caused the Rambler to arouse toward morning with a fearful sick headache, and all day the bed was occupied with a despondently sick person. A good rest the second night enabled me the next day to eat a little and make a few short trips on the streets. It is said that first impressions are lasting. As this was a severe stomachic one, it will be remembered. My next impression was through my generous olfactory organ as I approached the Chicago River. A celebrated comedian is said to have remarked, before a Chicago audience, that he heard them talking much about filling in and beautifying along the lake front; but he would advise them to win renown by filling in that immense filthy sewer called the Chicago River. The river, though filthy and loud-smelling, is full of shipping and traffic, and, entering the lake through the business portion of the city, it is spanned by over 60 drawbridges, and undermined by two tunnels. Judging Chicago from the river point of view, the impression is not good.


SOCIALISTIC "CIMEX LECTULARIUS" (BEDBUG).

The Commercial Hotel, charging me for all the meals I missed during my indisposition, I changed to a splendid hotel on the European plan. I was here highly entertained during the night — by several specimens of the genus *Cimex lectularius*, who were evidently in search of rations on the help-yourself, socialistic plan. After this interview I felt decidedly better, and was on the street at an early hour. Wishing to get a general view of the city I ascended the tower of the Auditorium building, and saw on one side Lake Michigan, calm and peaceful; on the other side what I called smoke with a few church-spires struggling through it. A closer observation, however, revealed it to be genuine Chicago gas. Every resident in the city is in duty bound to emit a hundred cubic feet of gas per minute, all about the greatness of Chicago. If this gaseous condition continues to augment, it is predicted, by the oldest inhabitant, that the wonderful tower to be erected will be completely enveloped in this gaseous haze, and be utterly useless as an observatory.

After leaving the Auditorium I went directly up Madison St. to the office of the *American Bee Journal*. Upon entering this famous establishment I found confusion in every department. I didn't know at first but too much Chicago gas here had caused an explosion: but I soon found the true cause. Our friends were having a moving agony, and were going to larger and more commodious quarters. Mr. Newman is a genteel-appearing man of medium height and breadth, and would be readily recognized by any one who has seen his photo in the journals. The son Alfred is a chip from the old block, as far as appearance is concerned: and beneath the exterior I have reason to know there beats a kindly and fraternal heart.

My first acquaintance with the *American Bee Journal* dates back to about the fourth volume, or when edited by its founder, Samuel Wagner, and only a short time previous to his death. The old numbers of those early volumes are carefully preserved. The editorials have a scientific cast, showing that the founder had a love for research, and a power to impart the same spirit to others. The Rambler's first essay in the interests of bee culture will be found in these early volumes, over the name of "Scientific," and not much science about them either. After the death of Mr. Wagner I lost interest in the journal until it was revived by the present editor, since which time I have been quite regularly its patron. The enterprise of the present editor needs no further comment than to refer to the fact that he was the first to give the fraternity a weekly paper. I do not know whether the editor ever becomes discouraged or not; but between the grip and the low price at which the paper is published it would be no more than human if he did.

Let us see—occupying the position it does in the apicultural ranks, and the legal status it has given to bee-keeping through the Bee-keepers' Union, its circulation should be great. It costs the reader less than 2 cents per week. Now, whatever circulation the journal may have, I feel that an addition of ten thousand more would give it such a boom that, though valuable now, it would be enabled to become doubly so. That such a state of things may be accomplished is the wish of the

RAMBLER.

[GLEANINGS desires to second your wish in regard to the old *American Bee Journal*.]

LADIES' CONVERSAZIONE.

CANDY FOR BEES.

WHY A. N. DRAPER HAD BAD LUCK WITH HIS CANDY; HOW TO MAKE CREAM CANDY FOR HOME CONSUMPTION.

After reading Mr. Draper's article on feeding bees candy for winter, Dr. Miller wished me to write something about candy-making, not because I have had any experience in making candy for bees, but because I have had a good deal of experience in making candy for our own consumption, and he thought some of the points might be of use just here. First, Mr. Root, I turned to the A B C to read your instructions for making. You say, "Into a tin saucepan put some granulated sugar, with a little water—a very little water will do." When I make candy I like to know exactly what proportion of sugar and water to use. I think it makes a great difference in results if you know. You also say, "Make it boil, and stir it." Do you mean to stir it when boiling? I can hardly believe you mean that, as I think it will inevitably give you just what you started with—granulated sugar. I have often had it granulate without stirring, and cream of tartar in it besides, while the slightest stirring when boiling is sure to make it granulate. Some sugar is worse about granulating than others.

I suppose your bee-candy is what confectioners call "creamed" candy, which is used in candy-making as the basis of a great many different kinds. If properly creamed it will not granulate, and will keep for a long time. In making, I use 7 lbs. of sugar, 2 teaspoonfuls cream of tartar, and three pints of water, or in that proportion, and never stir in the least when boiling. Let it boil till it reaches the "feathery" stage, as confectioners call it, which is determined by dipping a skimmer in the syrup and blowing hard through it. Whenever you can blow bubbles through the holes in the skimmer, it is done and must be taken from the fire instantly. A great deal depends on taking it off at just the right time.

I now turn the syrup into a large bowl and stir very hard until thoroughly creamed, when it will be milk-white. If too hard it can be made softer by adding a few drops of water, stirring it thoroughly. If too much water is added, the candy will be too soft.

I believe Mr. Draper made three mistakes. First, he had too much sugar for the amount of water used; second, he stirred when boiling; third, he did not cook it enough. He says he set the can with the syrup inside the kettle of water, and water can be heated only to 212°; and although I do not know how hot the syrup must be before it reaches the right point, I feel pretty sure it is considerably hotter than 212°. I think syrup boils at a good deal higher temperature than water. If you have some syrup on the stove boiling, and let it cool down till perfectly still, then drop a little cold water in the syrup, that water immediately boils, showing that the syrup must have been considerably above 212° before it stopped boiling.

It was not only not sufficiently cooked, but, if I understand Mr. Draper, the sugar was not all dissolved, for he says, "163 pounds of sugar will all dissolve; but in order to get it to harden enough to haul to an out-apiary it is necessary to put in from 15 to 20 pounds more sugar," intimating that the sugar was not all dissolved.

You say in your footnote, Mr. Editor, that his candy was too hard. I don't see how it could be too hard. It doesn't seem to me it could be called candy until it had had more cooking. Wasn't it simply water with all the sugar stirred in that it would dissolve, then a little more sugar put in to thicken it? What was there to prevent its being granulated sugar again when the water evaporated? Isn't it the boiling alone that makes all the difference between wet sugar and candy? Even if every thing else had been right, I should imagine that stirring when boiling would alone be sufficient to spoil it.

Since writing the above I have just discovered that you give fuller instructions for candy-making on the next page of the A B C. On page 57 you say, "Make it boil, and stir," which seems to mean to stir while boiling. On page 58 you say, "Take it off the stove at once; and as soon as it begins to harden around the side, give it a good stirring, and keep it up until it gets so thick you can just pour it." In this case you say nothing about stirring until it is taken from the fire and begins to cool. That's good. Stirring while boiling will make granulated sugar. Stirring after taking from the fire, if taken at just the right time, will cream it, which is what I think we want.

Marengo, Ill. EMMA WILSON.

[We believe, Miss Wilson, you have explained why Mr. Draper had such bad luck with his candy. Personally, the junior editor has had no experience in making candy for bees. The article on candy in the A B C book was written by A. I. Root. It is our impression, however, that he desired to have it granulate to a certain extent. When he sees this he will probably explain.]

FIXED FRAMES.

MRS. AXTELL EXPLAINS THEIR QUINBY HIVE; ITS METHOD OF MANIPULATION, ETC.

I have an idea that a large frame works better as a fixed closed-end frame than a small one would, as a large frame gives more space for the bees to gather in the center than a small frame, and so is less liable to kill bees in manipulating them.

Our Quinby hive is just like Elwood's, as shown in cut in GLEANINGS, except that the sides and ends are clamped together at the corners instead of being nailed as his is, and slipped down over the top with the top nailed fast, if I can rightly see it from the cut in GLEANINGS. His hive-body, I see, does not come clear down to the bottom-board either, while ours does, and is held in place by a dowel-pin in each side, that drops into a socket in the bottom-board. Our hive has a flat board on top, tinned over with an inch rim around the sides. When we work through a hive we take off the top and take down the back-board and unclasp one front corner, which lets one side lean over, as the dowel-pin in the bottom holds it up. We can then take out one frame or all the frames, and replace them; then push up the side board that acts as a vise and shoves the frames up tightly. This is the hive we use in the home apiary; but the one we use at the out-apiary holds twelve frames, and a dummy the width of 3 frames, or 16 frames without the dummy or filler. The first hive we bought direct of Quinby, and we made about 100 of them; but finding they were heavy to handle, and as we wished to tier up instead of getting section honey at the sides of the bees we made smaller hives, holding 12 frames. Since then we have put in dummies the width of three frames, and now use only 7 frames to the hive, with the dummy and super holding 36 sections resting on top, as we found we got the nicest comb honey above the bees. In the large hives at the out-apiary we use only 7 or 8 combs with a dummy at one side, and a division-board at the other side, which leaves empty space in the hives during summer; but in winter it makes an excellent outdoor hive for outdoor wintering, by setting the bees in the center and filling in the sides and on top with chaff. We also lift the bees up from the bottom-board about 1½ inches. We used to turn them around in the hive so as to have chaff on all four sides, but that makes more work.

The hives at the home apiary, holding but 7 combs, do not winter outdoors so well as the larger hives. We used to remove the dummy and fill in with chaff, and chaff on top; but for two winters we have not used chaff in the hives put into the cellar, and I think these do better, as the mice worked in them so badly; and warm winters it was difficult to keep them cool enough with from 125 to 150 in one cellar. We raise them up also from the bottom-board. In these large hives we loosen that viselike arrangement and simply shove the frames up tightly together. With care we kill but very few bees. Mr. C. P. Dadant says in GLEANINGS they are "perfect bee-mashers," and he has seen such men as Axtell handle them; but he is mistaken about ever seeing Mr. Axtell handle bees in the Quinby hive, as he has never been at our house, and Mr. Axtell has never been in an apiary with him except in his own apiary, and I believe he does not use the fixed frames.

With care one does not need to kill bees any more with fixed frames than with the loose frame. I should not think so, at least, although I have never handled the loose frames much. With tight end-bars, and boards at the sides of frames, one can make a very warm hive for winter without chaff when set in the cellar, or packed with dry chaff and left out of doors.

We keep our chaff from one year to another rather than gather up fresh chaff each year, as it is more apt to be damp when freshly gathered.

The movable side clamped at the corners is a feature we very much like in some respects. We do not need to remove the supers on top to know the condition of the colony. Simply unclasp one side and take it out; lift out one or more frames and set them back without disturbing the surplus; but unless the frames fit the hives loosely, when first made, or if they fit tight, care must be taken to keep the propolis scraped off from both front and back board, or they will get to fitting so tight it is not so easy to clamp the corners. MRS. L. C. AXTELL.

Roseville, Ills., Nov. 9.

[Your hive differs from the Hetherington-Quinby quite a little. Mr. Hetherington and Elwood do not use the loose sides and top, and the clamping arrangement. When they are not running for surplus, that outside case, or box, sits clear down on to the bottom-board. We believe you said, in one of your former articles, that you did not kill bees, but that your helpers would mash a good many when they put on the end and side boards. This can not occur with the Hetherington-Quinby hive. Mr. Hetherington evidently regarded the original Quinby as too large; and while he preserved the depth of the frame, he shortened it by about two inches. Mr. Elwood uses only six frames on the average. We notice that you reduced the size of your original Quinby, and cut it down to seven frames.]

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

NARROW VS. WIDE BOTTOM-BARS.

Friend Root:—The change you have made in bottom-bars is a good one. I have had a few such frames in use several years, they having come with some bees that I bought. I do not know who made them. I adopted the narrow bottom-bars and made all my thick-top frames with them last year. I have not used many of them in my apiary yet, but my experience leads me to believe that the narrow bottom-bar is better than the ⅞. There is less tendency on the part of the bees to build brace-combs to narrow bars, therefore the frames are more easily and quickly handled. I have not observed any tendency in the bees to draw the comb down closer to the bottom-bar than to the wide—at least, I have not seen any combs connected with the bottom-bar by the bees.

I make the bottom-bar $\frac{1}{4}$x$\frac{5}{16}$, and they go on wide side up. I intend to try them about the same size with the edge up. That will give less surface underneath, and more stiffness to the frames when pulled upward. Bottom-bars might be dispensed with altogether were it not for the fact that they are needed to give strength to the frame; therefore the smaller we can make them, and preserve the requisite strength to the frame, the better it will be.

Wetumpka, Ala., Jan. 20. J. M. Jenkins.

SUCCESSFUL MAILING OF QUEENS TO AUSTRALIA, AGAIN.

The two queens arrived on the 12th of Sept. They were both in splendid condition. The first that I opened had eight dead bees in the box, and the other one had only one dead one. The box with the eight dead ones had consumed the most stores, and the inside of the box was very dirty. The other box was almost as clean as the day it was made. The bees balled one of the queens after they had liberated her, but I saw them in time, for she is laying all right, and does not seem any the worse. She has now got four combs filled with eggs and brood. The other one is a little ahead of her, as she has eggs and brood in five combs. We have every promise of a good season. The bees are beginning to swarm. We have been troubled very much with foul brood, but I am happy to say that mine are free from it now.

James Adamson.

Hastings, Hawkes Bay, New Zealand, Oct. 6.

ANOTHER VICTIM TO GRIP.

Baxter C. Griffith, one of our brightest young apiarists, has gone to join the great majority. His illness was short—only eight days. *Grip* was followed by pneumonia. The only child of aged parents; the father of five lovely girls, and the owner of a large apiary, with no one left to manage it—all go to make his death a peculiarly sad one. His place in church, in state, in apiculture, and in society, will be hard to fill. He was a bee-keeper of only a few years; but by his untiring efforts, and the knowledge gleaned from his many text-books and journals, it is safe to say he was well advanced in the art of bee-keeping. He was a consistent member of the A. R. P. church, and his pastor's loss is hardly second to that of his family. To his bereaved wife we can only tender our sympathy, and point her to Him who does all things well.

Pineville, N. C. A Friend.

MR. DOOLITTLE ON HIBERNATION.

I find but little to controvert in Mr. Doolittle's article on p. 45, except his narrow definition of hibernation. It is *not* turning the word from its legitimate meaning to make it designate the state of quietude, torpor, or semi-torpor, which he describes, and which is necessary to the best wintering of bees, whether out of doors or indoors. Bears hibernate, but they do not "freeze up solid." If a thermometer could be introduced into a bear's internal economy while in a state of hibernation it would register higher than 60 degrees. The bee-cluster is a kind of entity during winter quietude or torpor. Hibernation is not a fixed condition. It has its degrees and variations. See Kirby and Spence's Entomology, and other similar works.

Guelph, Ont., Jan. 23. Wm. F. Clarke.

GLEANINGS FOR JAN. 15, AND THE JUNIOR EDITOR.

Dear Bro. Ernest:—Gleanings for the 15th is here, filled to the covers with good things. Do you know that it is wonderfully gratifying to the bee-keeping world to see that you can so fully fill your father's place as editor of Gleanings? I venture the assertion, that the question has been propounded thousands of times, "I wonder how Gleanings will prosper when A. I. Root is taken away." But He that doeth all things well has provided for the continuance and prosperity of that, of which from its birth he has had a controlling interest. May you *both* be spared yet many years to enjoy its prosperity is my prayer. I want to thank you for the kind words, and prominence you have given me in your very nice report of our convention. I am sorry the meeting was not up to the average, but you have made the reason very plain.

Fremont, Mich., Jan. 19. Geo. E. Hilton.

[Thanks. For the last five years we have had editorial charge of Gleanings so far as it relates to *bees*. If we have done well on the last three or four numbers of Gleanings it only shows that it is not new business to us. We have just been keeping on in the even tenor of our way.]

AN AVERAGE OF 160 LBS. OF HONEY FROM 65 COLONIES, AND AN INCREASE OF 20 COLONIES.

I keep my bees near the Mississippi River, on the west side, and, you might say, in a perfect wilderness of wild flowers on which they work from the latter part of February until about the 1st of November. I commenced in the spring of 1891 with 65 colonies in fair condition, and increased to 85 colonies. I left plenty in hive to do them through the winter, and took, in 1-lb. sections, 2806 lbs.; extracted, 7800 lbs., an average of 160 lbs. of honey per colony. Besides that I saved 122 lbs. of beeswax. I have had to sell lower than heretofore, parties back of Memphis, my best market, underselling me.

R. J. Mathews.

Rosedale, Miss., Jan. 1, 1892.

THE FESTIVE BUMBLE-BEE.

A LITTLE PRACTICAL EXPERIENCE.

When a gentle kind of stirring 'neath a tuft of grass I see,
And I hear the gentle buzzing of a lonely bumble-bee,
Then I know that I shall catch it, and my flesh in fancy itches,
As I feel its little stinger through the seat of my old breeches.
Every tingle of a shingle has an echo as it hits;
But a thousand burning fancies from a bee-sting always flit;
While a thousand bees and hornets 'neath my coat-tail seemed to swarm,
For there's nothing like a bumble-bee to make a fellow warm.
Away out 'cross the meadow I thought the thing had passed,
But soon beneath my coat-tail I knew 'twas sticking fast;
And there it kept a buzzing, and merrily did sing,
And all the time kept playing with its dainty little sting.
There was an intermission, and I thought, "Now, here's my chance;"
And so I struck at Mr. Bee, but only hit my pants.
For that cross bee soon showed me that it could swiftly fly—
It came around so quickly and hit me o'er the eye!
It never stopped a moment, but quickly flew aloft—
My eye, it swelled to blindness—my other end got soft.
Oh loving, tender mercy! cast your pitying glances down,
For I'm the worst used fellow in all this Hawkeye town.
I've had, of fun and sport, all I ever care to see,
And I never more will monkey with a festive bumble-bee.

Muscatine, Iowa. John E. Fultz.

NOTES OF TRAVEL

FROM A. I. ROOT.

LETTER TO HUBER.

Well, my boy, if you were with papa this morning he could show you a lot of funny things. Right in front of the window where I write is a pretty dooryard full of trees, rose-bushes, etc. A path runs down to the gate; and you would expect, outside the gate, a wagon-road, of course. Well, now, there isn't any wagon-road outside the gate at all. Come down with me and see. It is just a great lake of water; and when the tide is high, the water comes almost up to the gate. This water is the "wagon-road" they have off here. Do you want to see the "wagons?" Well, here is one in full sail. It is a very pretty boat, provided both with oars and a sail. "Al" and I went over to the post-office in the boat. Al is Mr. March's oldest boy. He is 18 years old. He put up the sail, and I sat in the stern to steer. It is real fun to steer a boat when the wind just makes it plow through the water. The wild ducks and wild geese were just a gabbling and diving all around us. Al shot some snipes, and they flew out into the water; but the dog that was with us, he just plunged into the salt water and swam out after them, and brought in every last snipe. Al killed 19 at two shots. When we went around the point, Al told me several times to steer pretty well out, as a bar of gravel ran out into the sea. I told him I would be sure and keep out in deep water; but, what do you think? All at once the boat struck bottom and plowed away up into the gravel, and we were "stuck" sure. Al took a pole, however, and finally pushed us out into the water again.

H. A. MARCH'S YACHT.

We went up to the depot and got our freight, and, after it was put into the boat, it made it sink in the water so much that Al couldn't get it up near enough to the shore for me to get in. You see, the bottom of the boat struck the gravel, and I couldn't wade in the water as Al did, because I had been sick. So I went out on the railroad bridge, and Al rowed the boat up against one of the long piles, or timbers, that hold up the bridge, and then you ought to have seen me "shin down" the post into the boat. The log was so big I could hardly reach around it.

There are lots of Indians around here; and as I was very anxious to see them, Mr. March told me Christmas morning there was a tribe of them camping out right near our house. The ground was frozen, and covered with a thin coating of snow and ice; but we found them camping right on the frozen ground. The wind was blowing such a gale I could hardly stand it with my overcoat and all my flannels; but one of the Indian women was sitting on the ground, bareheaded and bare*footed*, nursing her baby with perfect unconcern. The baby turned to look at me, but the wind blew his straight black hair all over his eyes so he could hardly see. Several other women were going about barefooted, often stepping into water with ice in it, with perfect unconcern. Mr. March says they go barefoot all winter long, but never take cold. They have mats made of a kind of cat-tail, that they sit on and sleep on. These mats are also used for shelter, making a kind of wigwam. Oh! I forgot to say the *men* all wear rubber boots, while the women go barefoot. As we started to go away, the old chief motioned to us and pointed to their boat. This was the boat that brought them there, and Mr. March said they wanted us to look at it and see what a nice one it was. I went down, and was very much surprised to find a boat large enough to take quite a tribe of Indians. It was made, or, rather, cut out, of a single log of wood. It was beautifully light and gracefully fashioned, and all done by the Indians themselves. It takes an Indian *two or three years* to make such a boat. This is because they won't use an ax or an adze, but just cut out little bits at a time with a little tool of their own. Lately, however, the younger Indians are learning to use modern carpenter tools. The young Indian girls also wear shoes and stockings; it is mostly the middle-aged or older women who persist in sticking to their old customs.

Well, after I had examined the boat all over, and praised it, the old chief wasn't satisfied. He made motions, took hold of the boat, and grunted, and then we understood that he didn't mean us to *see* the boat, but to take hold and help pull it up on shore where the waves wouldn't wash it off into the water. Friend March commenced to help pull it up; but as I had been sick, I thought I wouldn't lift any; but this didn't suit the old chief. He made motions to *me* to take hold, and then grunted again, to indicate I was to pull and lift too, and to lift *hard*. So I had to take hold, and at least make *believe* that I was pulling a big lot.

The Indians are what they call "Flatheads." They used to fasten a board over every baby's head, so as to flatten down its forehead. You can find pictures of them in some of your geographies. Mr. March can "talk 'Injun'" a good deal, and he sells them apples and all sorts of garden stuff. The Indians live mostly on fish and game. They cure their fish so it looks a good deal like dried codfish. This they put on sticks stuck in the ground close to the fire in front of the door of their tents, and toast it as we toast cheese. I rather wanted some myself; but as I didn't pull on the boat very much, I was rather bashful about asking for a piece. Since I have got well I am hungry about all the time, and I can eat any thing anybody else eats.

Among the other kinds of water-fowl we saw in such abundance on the bay were "Mother Carey's chickens." They are just as cute as can be; but if you just shake your finger at them they dive down out of sight in a most comical way. There are all sorts of divers and ducks that are not good to eat. They say it is because they live altogether on fish. The ducks and geese that are good to cook live on seaweed and other vegetable products. Besides the ducks and geese, there are thousands of seagulls. These are about as large as a common chicken, but have much longer wings. They follow the steamboats in great droves, just to get the leavings of the table after the meals. You see, they just follow the boats until somebody "shakes the table-cloth," and then, "oh my!" what a scampering! They dive right down into the water, like a lot of bees after some honey. They drop into the water, and swim and dive in a wonderful way. They also skim over the surface without moving a wing, until you begin to think they fly without any motion at all. They will skim along by the boat, moving just as fast as the boat does, but scarcely moving otherwise, until it seems like witchcraft. There is a law against shooting them, as they clean up so much rubbish and refuse matter, and so have become very tame. They will sail so close to you that you can almost reach them. I think I have studied out how they fly or sail so long without moving their wings. They collect in a flock, on a certain side of the boat, and keep right there for miles. This place is where the wind strikes the boat and is turned upward. We call it an "ascending current of air." Well, as long as they keep in this it keeps them up. If it blows upward *too* hard, they tip their heads down and sail downward. If not hard *enough*, they will have to flop their wings a little occasionally to keep up. They must be *wonderfully* expert in flying, to keep right in this wind that blows constantly upward, and still keep at just such a height all the time. When the wind was blowing very strong, once in a while a bird would get out of the current I have spoken of, and away he would go like a shot. Why, he would have to fly with all his might for quite a spell to get back to his place with his comrades. I took a lot of them with the Kodak, and hope to show them to you when I get home. They are of all colors, from pure white to ever so many shades, and some of them are beautifully mottled, speckled, and striped, in the most fantastic way. There, Huber, I think this letter is long enough for one time.

Before I take leave of our good friend March and his poultry, celery, cabbage, cauliflower, etc., I want to tell you of a plan of getting two heads of cabbage from one plant. Put out your Jersey Wakefield in the usual way, only use the very best strong plants, and set them on your very richest land; and when the heads are ready to sell, cut out the head, leaving all the outside leaves attached to the stump; that is, cut out the head so as to have no leaves to strip off and throw away, for the leaves are all left on the stump. Now keep cultivating these stumps along with the other cabbages that have not yet headed, and very soon small heads will start out on the stump. Pull off all these little heads but the best one, and this will soon make a head as good as, and may be better than, the first one. I presume this is not new to many of you, unless it is the picking-off of all the little heads except one. Very well; now, these second-crop heads will, many of them, mature so late they may be wintered over in the usual way, and these are the ones friend March gets his choice cabbage seed from. Do you see the point? To keep up the Jersey Wakefield to its best for an early cabbage we want to select seed from the *first* and *best* heads made in the spring; but I never knew how this could be done until now. Simply select the *first good nice head* of early cabbage you get next spring; cut out the head as above, and let it make another, and this last one you can winter over. Set it out in the spring, and you can raise your own seed, and have it from your best and choicest specimen. Or, if you don't want to raise seed, you can have a spring crop and a fall crop from the one cabbage-patch.

THE GREAT NORTHWEST, AND ITS FUTURE.

When friend March sent me his kind invitation, he mentioned the wonderful new town, only three miles from his ranch, a town of 2550 population, which, only *twenty months ago*, was a wilderness. This town is Anacortes. There may have been instances of like rapid growth on record; but if so, I have never heard of it. I expected to find it made up chiefly of buildings of unplaned lumber, put up in the cheapest possible manner. Not so. I was greatly astonished to see fine brick buildings and handsome, stylish residences without number. Their waterworks cost them about $50,000; electric railway of eleven miles, $250,000; ten miles of planked and graded streets, $100,000. An electric-light plant is all completed, and a daily paper has been going for some time, as well as two weekly ones. A school-building to cost $40,000 is nearly finished. A Presbyterian church is completed, and a Methodist church will be ready by spring. I need not tell you of the craze and boom in real estate here during the last two years. Land worth two years ago $20.00 per acre is now valued at, and has been sold for—well, let us say many thousands per acre. Poor men sold half their small farms, where they had lived for years from hand to month, and received in gold more money than they ever expected to see. Then the man who paid them so much gold sold half of *his* half, in less than three days after his purchase, for more than he paid for all. Saloons sprang up until almost every other house, in some parts of the town, was a saloon. But church people were on hand, and churches were started to keep pace with them. The W. C. T. U. has fixed up a very pretty reading-room, right in the business part of the town; and when I went in so many were making use of it that a man rose up and offered me his seat. Sunday evening, I was asked to talk to the Epworth League of the Methodist Church before the regular service at 7 o'clock. I chose for my text, "Ye are the salt of the earth," and applied it to the Christian people, especially to the young Christians of Anacortes. The audience was good and very attentive; and the president of the league, and also the pastor of the church, both indorsed with exceeding kindness the points in my talk. Many of the saloons have already starved out, and, when closely examined, are found to be only a sign and an empty room. At Fidalgo, where friend March gets his mail, they tried to start a saloon. The matter was hotly contested by vote, but the friends of temperance gave up with sad hearts, and much dismal foreboding, when they were beaten by a vote of *one*. The saloon-man was triumphant, paid for a license, and opened up business. Now, what do you think? Why, he never received money enough for his liquors to get back what he paid for his license, let alone profit, and now *his* building, too, is an empty room with a sign over it. When a saloon-keeper is starved out he hasn't energy and ambition enough left to take his sign down. I tell you, friends, there is something hopeful in all this. Public sentiment is advancing. Christianity *is* getting to be "the salt of the earth;" and sometimes we Christians, in our want of faith, don't even suspect how rapidly we *are* gaining ground. Do you wish to know what I think of the future of Anacortes, and a hundred other towns growing in like manner, but perhaps not so fast? Well, I think this: If Christians will remember their divine commission, and push the cause right along with, and side by side of, the boom and real-estate excitement, the outcome will be all right. But, oh let us beware that our "salt" does not "lose its savor," for then shall Satan triumph, and the end will be ruin. The wild speculation in building up a new town can not last long; and, in fact, to make it hold out, people must go to work. If there were more like friend March, who likes to make money by raising eggs, celery, cabbages, and seeds, there would be need of towns and cities; and I was pleased to note how many of his neighbors were succeeding with fruit and other like industries. Puget Sound has wonderful resources in fish, minerals, and agriculture, and both railroads and boats are right at hand to move her produce. I am told that the fishermen of the sound employ 3000 men, and the product is something like a million dollars yearly. Seattle, with a population at present of 43,000, has grown up much in the the same way as Anacortes, but perhaps not so rapidly, and is now a beautiful city, with all the equipments of one of the finest eastern cities. Tacoma, a rival city, about 50 miles distant, has 40,000 inhabitants, and is in many respects a beautiful place. The largest ocean steamers run into all these places, and sail from thence to every part of the world. Even Anacortes boasts that twenty different steamers and steamboats touch her landings every day. O my dear friends! who in this wide world has even a *conception* of the things God has in store for those who are daily seeking, first, the kingdom of God and his righteousness? Y. M. C. A. reading-rooms and buildings are found in most towns of any size; and at Port Townsend the building was lettered on the side fronting the bay, with letters so large they could be plainly read from vessels that passed through the bay; and I saw the same at other towns. This is surely hopeful. Why should not the Lord's cause be plainly advertised as well as the great hotels and saloons? At Anacortes they have a hotel called "Nobar Hotel," and so the sign reads in large letters, meaning that no bar for the sale of liquors is connected with it. And this reminds me that there are more or less vacant hotels in nearly all these new towns. As most of the hotels have a bar, I have been wondering if it is not one reason for it. Building a great hotel when a town is to be started seems to be a sort of mania; and great hotels that have never been occupied at all are seen quite frequently.

Town-building is not always a success; for at many of the railroad stations we find deserted towns, buildings almost all vacant, and boards nailed over the windows. If those who go into such towns would start right into gardening, poultry, bees, and such industries, the future of the town would be assured; for the steamers and railroads take any kind of produce, and pay good prices. In fact, prices are better here for almost every thing than in the East. Great hop-fields are found here and there; and were it not for the hop-aphis this region would probably supply the world. I confess, however, the industry does not make me feel happy. If all the hops raised were to be used for making bread, then might we rejoice; but as by far the greater part of them is for the support of the breweries it is a serious matter. As we come out of Tacoma, toward Portland, on each side of the railroad are some of the finest-looking farming lands I have ever seen. All the underbrush has been cut out, leaving only handsome young firs and cedars. These are in clumps, or scattered here and there through the field. The grass is just like a beautiful lawn, and for miles and miles it looks like a handsome park. This may have been done by real-estate owners or by the railroad company; but even if it has, one can not help admiring their taste.

For fear the boys will neglect the Tobacco Column while I am gone, I think I will put in an item here. Some years ago friend March received a smoker and gave up tobacco, even though he had used it 40 years. It was a hard, bitter struggle, but he came through victorious. As he had a smoker already, he set the new one upon a little shelf, or bracket; and when sorely tempted he would go and look at the smoker, and remember his pledge given through GLEANINGS, and the effect it would probably have should he pay for the smoker, and own up beaten by tobacco. The smoker as an object-lesson helped him to "overcome."

"Mr. Root," said he, as he extended his hand at arm's length before me, "can you hold your hand any stiller than mine is?" I had to confess I could not, for there wasn't even so much as a tremor in one of his fingers; and he resumed, "Well, when I was using tobacco my hand would shake so I could hardly write my name, and I supposed it was because I was growing old; but it was only the poison of tobacco."

Now, dear reader, here is a text and a lesson for you. If you are a tobacco-user, hold out your hand as friend March did. Let your good wife say whether it shakes or not; and if it does, stop before you are a day older.

Now, this isn't all the story of that smoker. After he had conquered, and it did not trouble him more than a year, he still kept that bright smoker in plain sight on that bracket. You see, he had some boys in their teens, and it was well he broke off when he did. Well, one day a sturdy German neighbor came to see him, and to learn about bee-keeping. While he looked on and listened he smoked a meerschaum pipe. His eye caught on the new unused smoker, and he wanted to buy it. Friend M., with a twinkle in his eye, told him *money* could not buy it, but that he would *give* it to him on one condition. Then he told him the story. Our sturdy brother looked at his favorite pipe, and stood aghast at the fearful price he was to pay, and then he doubtless reflected that his nerves, too, were suffering from the nicotine poison. He forgot about the bees, and looked first at his pipe and then at the new smoker on the shelf. For a couple of hours he fought the battle, and considered the matter in all its bearings. Did you ever see a German deliberate on a trade? No doubt he smoked his pipe all the harder, as he made up his mind. But it was finally made up, and he answered, "All right! I take him." He gave friend March his pipe and took down the smoker; and although years have passed, he has never used tobacco since, and, like friend M., is rejoicing in the renewal of youthful nerves.

While in the office of Posson & Son, Portland, who handle bee-supplies for us, a man came into the inner office, where a lady works the typewriter, with a cigar in his mouth. As he went out the senior member of the firm looked at me and remarked that the man had unusual cheek. I asked him if he had read GLEANINGS enough to know where I stood on tobacco. Said he, "Mr. Root, although I have used more tobacco than enough to balance my weight, you can't hate it worse than I do;" and then he told me his experience. Years ago his wife was in poor health; and one day he thought a buggy-ride would do her good. When a little way from home she looked so deathly pale he turned his horse about in alarm, to take her back home. As he turned, the wind blew the smoke of the cigar the other way and she revived. But even then the good and patient wife tried to hide from him the real cause of her sickness. He guessed it, however, and threw away his cigar, and they finished their ride with no more of the faintness. He has never used tobacco since.

Oh! hold on! There is one very important point in friend March's experience I came near omitting. In one corner of the room is a book-rack, filled with choice books, almost from floor to ceiling; in another corner there are as many more. Said our good friend, with a wave of his hands:

"Friend Root, there is my tobacco," and, pointing to the other corner, he said, "there is more of my tobacco. When I gave it up and took a smoker I resolved to use an amount, to buy me a library, equal to the amount I had been using for the purchase of tobacco, and there is the library of *good, useful books*."

Now, it seems to me, dear friends, all this testimony ought to give the Tobacco Column a "boom." It is a *safe* thing to boom, as I suppose you will all agree; and as I sit here and write (in a neat little room in the McLallen House, Roseberg, Oregon) it is New Year's day—the day for starting every thing good. Of course, it will be long past that day when this reaches your eye; but remember that, when the above was written, I prayed that God might bless my feeble words in such a way that *good fruit* may be the result of this testimony of such weight and convincing power. A bright new smoker stands all the while on friend March's mantlepiece. I presume it is to keep fresh in his mind the fierce battle he fought and *won*. Oh! wait a little. I am not quite done yet. When I was at Seattle, Mr. C. M. Sheafe and family entertained me most royally; and while talking over their plans for the education of their three boys (all in their teens, I believe), the subject of tobacco came up. Friend S. broke square off from the habit Nov. 21, so he was right in the midst of the battle at the time of my visit, and I offered him what encouragement I could. I picked up his good wife's little Bible, and read from the third chapter of Revelation, the 5th, 12th, and 21st verses. Dear reader, if you are striving to overcome *any* bad habit, suppose *you* read them.

Friend March gave me the following actual occurrence, which forcibly reminds me of the truth of the little text, "Love ye your enemies; do *good* to them that hate you." Across the bay from Anacortes lived a man noted for his intense hatred of Christians and Christianity. He was terribly profane and blasphemous, and could not find words to express his contempt for ministers, especially for one *particular* minister in Anacortes. One blustering, windy night his house took fire, and burned so fiercely that he and his wife did not save even clothes to protect them from the winter weather. Well, this minister he had abused so much started out before the house was done burning, and raised him money enough to build again; and with the money, and clothing for them to put on at once, he went over in a boat and did his errand as if they had been warm friends all their lives. I hardly need tell you the result. He was humbled to the dust, took back all he had ever said, and has never been heard to swear since then. If any of his old comrades *now* commence to abuse Christians, and denounce the Christian religion, he turns on his heel and leaves the crowd so quickly that his silent protest is perhaps more effective than any words he could use. I think Anacortes may well be proud of such a minister; and, by the way, how many such ministers have you in *your* town? How many laymen? Why, my friend, there is an undeveloped *gold-mine* in these seven little words spoken by our Lord and Master: "Do *good*—to those—that *hate* you."

The junior member of the firm of Posson & Son took me over to see an Italian market-garden. After spending nearly three weeks in Portland and Washington I had made up my mind pretty well what might be done with hardy vegetables in the open air, even during winter time; therefore I was not surprised to find outdoors, without protection, beets, turnips, radishes, lettuce, carrots, peas, spinach, cabbage, cauliflower, onions, and corn salad. Radishes were in all stages of growth, some, in fact, just coming up. Early peas they plant about as we plant corn, only they put from a dozen to twenty peas in a hill. A whole field of them was just coming up, and they looked so much like corn, I climbed the fence and pulled up some. I think such an arrangement would have some advantages for dwarf peas that are not to be brushed or supported. Turnips, beets, and onions are sown at intervals so as to be young and fresh all winter long. The owner said that, once in a while, they had a winter so severe some of the stuff was injured, but so seldom that they take the chances. As the stuff is carried to market every day all winter they are pretty sure to sell a good deal of it any way. Mr. Posson was so determined I should see the famed Will*ah*mette (put your accent on the *second* syllable) Valley, and for other reasons, I swapped my steamer ticket for one by rail. This valley is indeed one of the finest agricultural regions in the world. I saw grapevines as thick as my arm. These were trained on trellises similar to the Fuller system. Even on this New Year's day I saw apples on the ground under the trees in such quantities that the ground was more than covered. I feel sure they were in good condition, but I can't see why the owners should leave them thus when they bring such good prices here. The scenery is beautiful, even at this season of the year, and the bright colors of the many shades of green that adorn the spruces, hemlocks, and various cedars that cover the hills, are hard to describe. The land is pretty much all fenced and under cultivation. Winter wheat seems to be a great staple in the vicinity of Salem; and as the sun strikes it, it adds not a little to the beauty of the landscape. When I suggested to a passenger that this mild moist weather would make the wheat grow too fast for the season, he told me it would; but they pasture it down, and I actually saw sheep turned on the wheat to-day, where the ground is just saturated with rain water. I wonder what Terry would say to such farming. I saw a great many tools out in the fields, and, as a rule, farmers here do not have any such barns or tool-houses as we do east. They say the stock does not need such shelter as we give; and as no shelter is provided, there is no place to put the tools under shelter. I am sure this is very bad policy, for it rains here for weeks together, and every thing is saturated with wet, if it is possible to *get* it saturated.

I was greatly interested in the falls at Oregon City—the more so as there is a little building, clear out in the stream, that utilizes the fall to run dynamos that send electricity *fourteen miles* to the city of Portland. About 20 wires on telegraph-poles carry the current which now lights the city, and they have power to let. These falls on the Willamette River would furnish power and light enough for the whole city, and, very likely, some to spare. It seems to me this is one of the initiatory steps toward a great revolution in power and light, and, probably, *heat* too. River steamboats run up the river as far as Salem, and some, of light draft, as far as Albany. Moss not only covers the rocks and ground, but a species somewhat like the Spanish moss of the South covers almost all the trees. The apple-orchards, when the trees get to be of any size, are so loaded down with it one might almost think they were all killed; but the people say it does not hurt them. In proof of this they point to the great crops of apples that the trees are loaded with. No doubt the moss sets the trees to *bearing*, but it does seem to me it shortens in the tips, and, may be, acts something like pruning. For some reason it seldom if ever attaches itself to the evergreens.

THE OREGON EVERBEARING STRAWBERRY.

I saw this on Mt. Tabor, near Portland, where it is raised by the acre. It is certainly no humbug, as has been intimated, for it has for years given considerable crops of berries, all along in the fall, and sometimes almost up to the holidays. In fact, I saw quite a field of them covered with blossoms and green berries, the latter having been injured by an unusually heavy frost in the early part of December.

"Now, the point is right here," said I to the owner of the grounds; "is it your climate, with its warm weather and abundance of rain, or is it the plant? You have the common varieties of strawberries here in your grounds, have you not?"

"Oh, yes!" replied he; and he pointed to several popular kinds.

"Well, do they produce blossoms and fruit, in the fall, like the Everbearing?"

"I have never seen any; at least, nothing like the Everbearing. Let us look."

We examined a patch of Cumberlands, near by, but not a bloom or green berry was found. He told me the Everbearing did not succeed as it did on his grounds, in some places right in the immediate vicinity. He has for several years sold these berries from August to December, and made a nice thing with them. He sells only the fruit and not the plants.

GLEANINGS IN BEE CULTURE

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In the multitude of counselors there is safety.—PR. 11: 14.

A BOUNTY or no bounty on honey—that's the question.

DR. MILLER says somebody did not report him correctly at Albany. We suppose he means us. Well, doctor, we accept your correction.

THE old *Missouri Bee-keeper*, as per previous announcement, comes out under a new name—*The Progressive Bee-keeper*. The paper is well edited, as usual, and well deserves patronage, not only for the State of Missouri, but for all the States.

WE are glad to renew our regular installment of Stray Straws, and we hope no other unlucky accident will prevent their regular appearance. The straws in this issue are unusually fresh, and sparkling with good nature. The doctor fits the place well.

FOR the last month we have been having quite severe weather. If it should continue thus it might go hard with bees throughout the country. For our locality, however, we are glad of it, as it puts our winter cases to a severe test. Our self-registering thermometer showed that the temperature went down as low as 11½ degrees below zero on the night of the 19th. Since then we have had some cold snaps, but not so low.

CEMENT or grout cellar-bottoms are not recommended in this issue by such good authorities as Dr. C. C. Miller and Julius Hoffman. As many, possibly, may be proposing to put in such bottoms, perhaps they had better wait and investigate a little before going to any great expense for something that might be useless or even worse than useless. We should like to have reports from those who are in position to give us facts in this matter.

IF you discover any lack of editorial sifting in this issue, please lay it to that old fiend La Grippe. It did not get hold of us this time, but it laid low the business manager, J. T. Calvert; and the consequence was, we were obliged to take up his work for a week, and part of the time work nights on GLEANINGS. Mr. Calvert is now back at his post as usual, but little if any worse for his siege of grip, and things are going on as usual again. We presume Bro. Newman, of the *American Bee Journal*, knows how to appreciate the position we were in a few days ago.

IT has been rumored that there is another chap who is about to place on the market artificial honey-comb, filled with glucose, deftly capped over by appropriate machinery. As M. H. Hunt said in his paper at the convention of the Michigan State Bee-keepers' Association, the prospective manufacturers of honey-comb never get any further than they are "going to," or "are about to do so." Bee-keepers need not worry. The newspaper canards have made some fools believe that it could actually be done, and that there was a mint of money in it.

But they are deceived. It never will be done, so that the product can be told from the genuine.

Remember the Ohio State Bee-keepers' convention at Cincinnati, announcements and program of which are given elsewhere. Nothing preventing, we expect to be represented by J. T. Calvert. We have been informed that Dr. C. C. Miller will be there also. His presence insures a good meeting.

The last letter from A. I. Root was to the effect that he was over his nervous chills, and was quite himself again. One day he walked eight miles and another thirteen, climbing the mountains. But our fatherly advice in another column (now on the press) still holds good. We want him to get permanently well and so save himself for many years of usefulness.

The watchword has always been, "Order early;" yet, in spite of this sensible advice, bee-keepers fail to get their supplies in time, even though their dealer is prompt in making shipment. A customer to whom we made a shipment of goods some two months ago, and who has not yet received them, even though we have sent two tracers, wrote us, "What would I do if this were the honey season? or, worse still, in the height, without any goods? I am mighty glad I ordered early, for there will be some chance of my getting them in time yet." Bee-keepers, no matter of whom they order their goods, should remember that freight shipments are sometimes delayed or lost. It sometimes takes a couple of months to recover goods, and sometimes even four.

Some of our customers even yet do not quite understand why we require cash or reference of those with whom we have never had any deal. Perhaps some of these people are bee-keepers whom we have met at conventions, and with whom we have enjoyed pleasant chats. It seems a little hard to refuse them credit; but the strict rules of business require that we know whether such a person is responsible in *money* matters. A man may be affable and pleasant—in fact, a leader in society, and, we are sorry to say, in a few cases, a leader in the church, and yet be very poor pay. If our friends would only understand that, even though they are perfectly responsible, we must have some evidence of it, and that, when we require cash or references, we do not necessarily impeach their honesty, it would save trouble.

One of our subscribers, Mr. F. J. Miller, of London, Ontario, Canada, writes:

> Has not A. E. Manum recovered yet from his honeymoon season? Surely that "queen" is receiving more than usual care, or he would have found time to let us know how he succeeded with those five apiaries alone. No wonder he required help before the season was over.

Mr. Manum promised, some two or three months ago, to write again, and we trust now that he will resume his pen, seeing that the invitation has been renewed. This is not the first inquiry we have had from subscribers, by any means, and we trust that his new queen will spur him up to duty. Yes, we do want to know how he got along with those five apiaries alone. There was a tolerably good honey-flow in Vermont last season, and we are anxious to know all about it.

We take great pride in our short symposium, in this issue, on the subject, "A Bounty on Honey." It is a cause of congratulation to bee-keepers that they have among their number men who are able to discuss these deep and weighty questions in so admirable and candid a way. The discussion on both sides is very fairly and well sustained, and we hold our columns open for its further consideration. Perhaps some of our readers would like to know our own individual opinion. As Gleanings is neither sectarian nor partisan, we think it wise to withhold, at least for the present, our own position. We are sure a little further discussion will, in any event, reveal the right or justice of the thing, one way or the other. There is one thing, however, we ought to say; and that is, bee-keepers should look beyond their own interests enough to consider the general public good. So many selfish and conflicting interests are the bane of our politics.

THE LOCALITY OF GARDEN CITY, KAN., AS A BEE-COUNTRY; A LITTLE ADVICE TO THE BEE-KEEPERS WHO MOVE TO PASTURES NEW.

Two or three months ago one of our correspondents spoke very highly of the region round about Garden City, Kan., as a bee-country, stating that colonies would average 90 lbs. of the very nicest honey, that as high as 180 lbs. had been secured in some cases, and that alfalfa was on the increase. A resident bee-keeper sent in a communication which we published shortly after, protesting that their country was no better than many places in the East; that bee-keepers would be disappointed if they came there with any great expectancy of obtaining great things. Since the appearance of these two articles we have received a number of communications from parties on both sides of the controversy; and as much of it is too personal, and as both sides have had a hearing, we think best to have the discussion stop where it is. Perhaps we ought to say this: That any bee-keeper who would rush into a new bee-country that has been loudly applauded, without making proper investigation, such as writing to a number of resident bee-keepers, would be, we were going to say, a fool; but perhaps "foolish man" would be a more respectable term. Well, there is truth on both sides of the controversy relative to Garden City. As nearly as we can make out, it is something like this: Two knights of old, riding along the road, met under a suspended shield, one side of which was red and the other blue. After a fight in regard to the color, they discovered that they were both right. They had not examined *both sides* of the shield. Although only a little of the Garden City controversy has appeared in our columns, we wish to say to all parties concerned that we believe there is truth on both sides. It makes all the difference on *which side* of the shield we are looking. This same thing happened over A. J. King's graphic coloring of Arizona, as seen on page 628 of last year. No sooner was it published than his bright colors were greatly shaded by a letter from J. W. Johnson, on page 766; and on page 765, same issue, Mr. King has another enthusiastic letter in regard to Arizona, but not so much so as his first one.

MR. AND MRS. A. I. ROOT'S CONTEMPLATED VISIT TO FLORIDA.

Within the past few weeks the whole remnant of Rootville have, in their letters, been urging Mr. and Mrs. Root to prolong their trip in California. The weather has been so very cold here in Ohio, and, as the senior editor's health since he has been away has not been of the best, we made up our minds, now that he was already in the land of flowers and perpetual sunshine, it would be folly for him to rush home again before the California climate and its surroundings could have its legitimate effect in dispersing his chills. It has always been his habit to be on the rush wherever he has been; and now it is of the utmost importance that he take things slowly, and give Nature a good big chance, away from business and its attendant cares. We extend to him a little "fatherly advice" over the printed page, and we presume he will accept it, even if the tables are turned with respect to relationship.

Well, we have also been urging them, as soon as they reach New Orleans by the Southern Pacific, from California, to take the boat and run over to Florida, and make a short sojourn there. This they have partially consented to do. Now, there are doubtless bee-keepers, both at New Orleans and in Florida, who would like to meet them, or, perhaps, would be glad to have them call on them at their homes. If any of our bee-keeping friends in the vicinities named desire to take advantage of this opportunity, write A. I. Root at New Orleans, care of J. W. Winder, 576 Magazine St. Mr. Winder is an old bee-keeping friend of ours, and we take the liberty of having the correspondence reach him via his name. They may not reach New Orleans before the middle of February, and hence you may not get an immediate reply to your letters.

Now, you need not tell him any thing about it, but we have been working a little scheme. They would say it would be impossible for them to go to Cuba; but if we could once get them to Florida, we are then in hopes of coaxing them to go down to the "gem" of the West Indies, and take a look at bee-keeping in its extensive proportions in that favored clime. Mr. and Mrs. Root are not expected to reach home before the first of March; but the weather will still be quite cold at that time, and we hope they may be prevailed on to remain until some time in April. They have been skylarking around the country so fast that we have not been able to follow them nor to give them any fatherly advice as readily as we might have wished. We are sure that GLEANINGS will reach them at the earliest possible moment, for it goes everywhere.

THE ONTARIO BEE-KEEPERS' ASSOCIATION SEVERS ITS CONNECTION WITH THE NORTH AMERICAN.

THE following is a copy of the report of the committee appointed by the Ontario Bee-keepers' Association, to consider the advisability of again affiliating with the N. A. B. K. A.: said report being subsequently adopted in convention:

TO THE PRESIDENT AND MEMBERS OF THE ONTARIO BEE-KEEPERS' ASSOCIATION.

Your committee to whom was referred the relation of Canadian bee-keepers to the North American Bee-keepers' Association beg leave to report:

That the North American Bee-keepers' Association, as its name implies, was originally founded on an international basis, the United States and Canada being parties to and partners in the organization. For upward of twenty years, and until a very recent period, this international character has been maintained, notwithstanding the manifestation of a disposition on the part of some United States bee-keepers to regard and speak of it as a national institution. This feeling took definite and formal shape at the annual meeting held at Keokuk, Iowa, last year, when a proposal to incorporate the association under the State laws of Illinois was made and agreed to.

The delegates from this association, present at that meeting, met the proposal with earnest remonstrance, emphatic protest, and firm opposition; but in spite of their efforts a committee was appointed to incorporate the body, with headquarters at Chicago. One of your delegates was named as a member of that committee; but from what subsequently transpired he was led to believe that those with whom he was associated cared little for his opinion on the subject. Moreover, we have reasons for believing that the official report of the Keokuk meeting, in the matter of the protests made by your representatives there, is largely characterized by a *suppressio veri*; that communications sent by them to two leading bee papers in the United States, discussing the subject, were not published, and that the great mass of bee-keepers within the jurisdiction of the association were denied the information necessary to a full and proper consideration of the matter, and of the means of arriving at a discreet and just decision as to the effect of incorporation if carried out as proposed. A few weeks ago it was announced in the *American Bee Journal* that incorporation had been effected. No particulars were then given. At the annual meeting held a month ago in Albany, N. Y., the report of the Incorporation Committee (which report had never been submitted to your representative on the committee, and who was present at the meeting) was presented and adopted. In brevity and *naiveté* it is an official curiosity. No information is vouchsafed as to the terms and conditions of incorporation. The bald statement is, "The association is incorporated under the State laws of Illinois;" that "the fees are paid, and the certificate in the hands of the secretary." Not a word is said as to its probable effect in the other States of the Union, or here in Canada; but it embraces the important announcement that the incorporators are the "life members *resident in the United States*." The life members resident in *Canada* are quietly ignored. Before the final adoption of this report, one of your representatives at the Albany meeting asked whether "incorporation, as now effected, did not localize the jurisdiction of the association, and make it an Illinois institution," and was answered that the association was "now local, *but its influence would be national*." When he put the question in another form, he was told, "It was necessary to incorporate under a State law, but the organization would be *national* in its character."

Your committee is not in a position to express an opinion on the future influence of the association, or to closely scrutinize its character; nor is it within its province to inquire what particular relationship it bears to the bee-keepers of the United States resident *outside* the limits of Illinois; but it has come to the conclusion that Canada has no rights under the new state of things, and that it was not intended she should. This is amply clear from the fact that her life-members are not among the incorporators, and that the widest character and influence claimed for it, by its promoters, are "national" and not international.

Your committee considers that the changed nature of the association is not a mere innovation, but a complete revolution in the groundwork and nature of the institution as it was heretofore constituted. Before, it was broad and international; now it is local, with but a declared national influence, and your committee look upon this change of organization as a gross violation of an existing compact, deliberately carried into effect in the face of the vigorous protests of your representatives.

Your committee are unanimously of the opinion that the only course open to the bee-keepers of Canada, consistent with independence, self-respect, and national dignity, is to retire from a position which has become, through no fault of theirs, anomalous if not humiliating, and therefore recommend that the Ontario Bee-keepers' Association do not continue in affiliation with the so-called North American Bee-keepers' Association.

Your committee has no hesitation in expressing the belief that the bee-keepers of Canada regret the circumstances that compel the severance of ties which have pleasantly existed for more than a score of years, and in their name tender to the great body of American bee-keepers, which it believes are not responsible, the assurance of our continued fraternal good will, our high consideration and cordial regards, and of our readiness at all times to co-operate with them in any enterprise calculated to further the interests of the industry in which we are alike engaged.

All of which is respectfully submitted.

R. MCKNIGHT.
WM. F. CLARKE.
S. CORNEIL.
ALLEN PRINGLE.

The above came to hand from the secretary, and his language is couched in such a form that one *might* get the impression that in the sending of it he was doing a disagreeable duty, and simply acting under instructions. We were greatly surprised and pained upon reading it—surprised, because we are certain that none of the members who were instrumental in having the N. A. B. K. A. incorporated had the *least thought* that that action would cause the Canadian brethren to withdraw. We were pained, too, because of some statements in the report that are calculated to carry the impression that we desired to put out from the N. A. B. K. A. the Canadians and break down their "national dignity," etc. Nothing could be further from the real truth. We have since received a private letter from one of the members of the committee, to the effect that the grievance was not against the bee-keepers of the U. S. as a body, but against a *few* of the leaders, and mentioned Thomas G. Newman. Dr. A. B. Mason, Dr. C. C. Miller, and the two Roots. We know that every one of the gentlemen named will be as much surprised as ourselves; but they will doubtless speak for themselves.

We greatly regret that the two members who were present at Keokuk should still misunderstand (we can not believe intentionally) the *purpose* of incorporation. Although it has been explained heretofore, it seems they have entirely overlooked the fact that organizations in the United States that are national or international in their character and influence, are, or should be, incorporated under the laws of some *one* particular State; and, as was also ably explained by Capt. J. E. Hetherington, at the Albany convention, incorporation *does not* make the association local, but a legal body politic, amenable to the laws, with special functions, rights, duties, and liabilities; capable of suing and of being sued—in short, transacting business. It is quite probable that the members of the O. B. K. A. as a *body*, not being familiar with the laws of the United States, were not in position to appreciate what incorporation on this side of the line means. We could not incorporate under both the national governments, nor under the laws of the United States, but under the laws of some one State. But, we repeat again, the North American is not less international now than before. Let us give one illustration of what the society now under incorporation is capable of doing:

As a body it can sue any packing-houses in any State, where the laws are strict enough, that may be engaged in the adulteration of honey. It is in better position, also, to protest against injurious legislation from national or State governments, because it is an incorporated body.

Nine-tenths of the bee-keepers of the North American are residents of the United States; and Chicago, the place of incorporation, is the most central of any point for those bee-keepers. The great *mass* of them in the United States are in the North. This our subscription-books show very decidedly. Nothing was more natural than that the State of Illinois should have been selected; and it seems to us, to speak plainly and in all kindness, that nothing but a partisan spirit, or a silly quibble on technicalities on the part of the committee, could make any objection to it. We have no grievance against the *body* of the Canadians who voted for the adoption of the report, for they were acting in good faith. Some of our warmest and best friends we number among the Canadians.

The report goes on to say, "We have reasons for believing that the official report of the Keokuk meeting, in the matter of the protest made by your representatives there, is largely characterized by a *suppressio veri;* that communications sent by them to two leading bee-papers . . . were not published." We have before us the report of the Keokuk convention, as written by the secretary, C. P. Dadant. The report had to be brief, necessarily, on almost every subject that was discussed; and yet it seems, as we look it over, that the Canadian brethren were given a fair hearing. GLEANINGS was one of the leading bee-publications designated, that is *said* to have suppressed one of the communications. The matter at the time was "not available;" and, moreover, we were sure the writer did not properly understand what incorporation meant on this side of the line, and we thought it useless to stir up discord or partisan feeling over misconception and misunderstanding. We were not aware, until we read the report as above, that the life-members in the United States only were the incorporators. We are very sure that the Canadian life-members were left out for no other reason than that the laws of incorporation require that the incorporators be residents of the United States. By the way, if we are correct there is only one life-member in Canada, and twelve in the United States. The Canadian member is D. A. Jones, and we are sure he would never quarrel with us on that point; and of the committee who make this as a big handle, not one is a life-member.

Reference has been made to the fact that bee-keepers on this side have called the North American "national." As we had no really distinct national association, the nearest to it was the North American Bee-keepers' Association; and when "national" was used it was employed as a convenient term, without any thought of excluding Canada.

As an evidence of the fraternal feeling, we presume it will do no harm to let out the secret that there was a strong effort on foot at Albany to put S. Corneil, a Canadian, in as president of the N. A. B. K. A. for the ensuing year. A number of members, including President Elwood, approached the writer on the subject, asking whether he would vote for him, and what he thought of our Canadian brother for the position. We not only indorsed the name, but said we would give our support to it, which we did. Those who were present at the Albany convention know well that Mr. Corneil would have been elected president if he had not absolutely refused to accept the honor. After this we were a little surprised that his name should appear among the members of the committee who drafted the report as above. This ought to show, beyond a question of doubt, that the American bee-keepers, who are members of the North American, desired to recognize Canada, and desired, also, to continue their past pleasant relations, as we had done heretofore. Mark this: The very bee-keepers who voted to elect Mr. Corneil are the *same ones* who voted to adopt the article of incorporation.

Now, brother bee-keepers across the line, does this not show that the idea of crowding Canadians outside of the association was the furthest from our thoughts? and does it not prove that we on our part desired to continue our pleasant fraternal relations?

We have taken a good deal of space to reply to this; but the reason we have done so is because it is an international matter; and now that the O. B. K. A. has taken the action that it has, it is proper that, as one of the Roots, and as a member of the N. A. B. K. A., we should explain our side so that our Canadian brethren can see that we were not intending to break down, nor even thinking of breaking down, their "independence, self-respect, and national dignity." If the Canadians refuse to reconsider, of course that will leave our association distinctly national, for Canada has been the only nation, outside of the United States, which had a voice in the proceedings of the North American.

A.W.L.
LIVINGSTON'S
TOMATOES

"THE BEST" Everybody Admits.
OUR OTHER SEEDS ARE EQUALLY AS RELIABLE
Seed Annual Free, Write For it NOW!
A.W. LIVINGSTON'S SONS,
BOX 273, COLUMBUS, OHIO.
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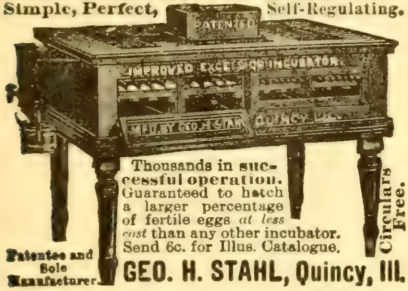
HATCH CHICKENS BY STEAM!
IMPROVED EXCELSIOR INCUBATOR WILL DO IT.
Lowest-priced First-class Hatcher made.
Simple, Perfect, Self-Regulating.



Thousands in successful operation. Guaranteed to hatch a larger percentage of fertile eggs *at less cost* than any other incubator. Send 6c. for Illus. Catalogue.
Circulars Free.
Patentee and Sole Manufacturer. GEO. H. STAHL, Quincy, Ill.
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RUMSON & MONMOUTH

NURSERIES.

Upon our 250 acres of Nursery we have every family of **Trees and Plants** hardy in a northern climate; whether fruit, ornamental, nut, or flowering. Among the numerous choice new sorts are Lovett's Best Blackberry, Beebe and Lovett's Early Strawberries, Japan Wineberry, Green Mt. Grape, Lincoln Plum, Hardy Orange, Japan Walnuts, Ice King Primrose, Everblooming Spiræas, etc.

All are accurately described and quoted at half the price of solicitors in **Lovett's Guide to Horticulture**, the most complete and elaborate catalogue published by any nursery establishment in the world. The book is richly illustrated and is replete with notes on purchasing, planting, pruning, care and culture. Mailed free; with colored plates, 10c.

Shipments to distant points a Specialty.
J.T. Lovett Co., Little Silver, N. J.
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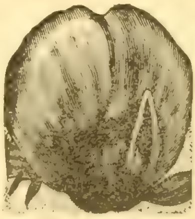
Is a beautiful book of one hundred pages, elegantly printed with ***true*** photo-engravings and colored plates and plain, truthful and reasonable descriptions. It is a ***Mirror of American Horticulture*** to date, and with less brag and exaggeration to the square inch than most books of this kind. We show that in one order, from ***under one roof,*** we furnish all Seeds, Plants, Bulbs and Gardening Helps, a combination not possible elsewhere. We offer completeness in every department and have a record in each; famous Chicago Market Vegetables, Grand Chicago Parks Bedding Pansies and Lawn Seed, 16 Mammoth Greenhouses with all Roses, Chrysanthemums, Palms,– new or old, from home or abroad.

☞ **IT TELLS THE WHOLE STORY** ☜ for the Garden, Lawn and Farm, and is a work of art and of FACTS. The book tells you our plans for Horticulture at the World's Fair of '93 and we cordially and earnestly invite every flower lover to register in our Columbian Directory. You will not regret it. (John Thorpe says 1893 will advance American Horticulture 25 years

THE OFFER:

To record every friend of Horticulture for our World's Fair Edition of '93, we will mail ***Five Grand Specialties*** if you mention this paper. **Sweet Pea Blanche Ferry,** large pink and white, 10 days earlier than any other; profuse bloomer on long stems; very sweet **Pansy Velvet Gem,** nearer red than any other Pansy many reddish shades in its variations. **Nasturtium Aurora,** yellow with carmine and purple, a distinct novelty **Mignonette, Giant Gabriele,** very handsome flowers, thick, heavy spikes. **Carnation Margaret,** the greatest novelty, flowering in 12 to 15 weeks from seed, full double flowers in all the shades of this favorite flower. These five and our 1892 Book "Gardening Illustrated", with cover illustration of flower girl in ten colors and gold, FOR ONLY 25c., less than half price. We make this offer only to secure your address as above. Come with us now. Seed Catalogue alone free.



VAUGHAN'S SEED STORE, 146-148 West Washington St., CHICAGO
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CIRCULARS RECEIVED.

Catalogues have lately been received from the following:

W. W. Bliss, Duarte, Cal.
S. C. Gorham York, Neb.
Harris & Brown, Lamine, Mo.
E. T. Flanagan, Belleville, Ill.
G. W. Cook, Spring Hill, Kan.
M. H. Hunt, Bell Branch, Mich.
G. K Hubbard, Fort Wayne, Ind.
Mrs. Jennie Atchley, Floyd, Texas.
Gregory Bros & Son, Ottumwa, Ia.
St. Joseph Apiary Co., St Joseph, Mo.
I. J. Stringham, 92 Barclay St., New York.
W. T. Falconer Mfg. Co., Jamestown, N. Y.

We are now printing a fine catalogue for Levering Brothers, Wiota, Ia. We have just finished the annual price lists of E. H. Trumpers, Bankers, Mich., and J. B. LaMontagne, Winter Park, Florida.

We have just printed W. S. Pouder's annual price list of apiarian supplies, 32 pages—175 East Walnut Street, Indianapolis, Ind. Friend Pouder has also just published a primer on api culture, entitled "The Busy Bees, and How to Manage Them." It is sold at the nominal price of 10 cents, and fairly bristles with good points for those who have had a little experience with bees, but who meet difficulties of various kinds. It is worth the price to any bee-keeper.

CHICAGO BEE-KEEPERS' SUPPLY CO.,
Are Manufacturers of and Wholesale and Retail Dealers in
BEE-HIVES, HONEY SECTIONS, FOUNDATION,
AND GENERAL SUPPLIES FOR BEE-KEEPERS.
Write for circular with special prices. Agents wanted.
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LOCATION
Is a big *point*, in supplying goods; ours gives you low freight rates. As we sell low, you should have our circular of supplies. 1-18db
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Please mention this paper.

ALSIKE.
Now is the time to sow, and during the next two months. We have a good supply of choice seed at the following prices, which are low for the present condition of the market:
1 lb., postpaid, 34c; 3 lbs. for $1.00.
1 lb. with other goods, 25c; 4 lbs. for $1.00.
1 peck (15 lbs.), $2.80; ½ bushel, $5.40.
1 bushel, $10.50; 2 bushels, $20.00.
Bag included in every case.
A. I. ROOT, Medina. O.

ITALIAN QUEENS FOR SALE.
The finest honey-gatherers in the land. Tested, $1.50 each. Select tested, $2.00 each. Untested, $1.00 each, or $9.00 per doz. Queens ready to ship by April first. I guarantee safe arrival and satisfaction, by mail. Orders booked now and pay when you want queens.
J. W. TAYLOR,
Ozan, Ark
4tfdb

POULTRY L. Brahmas, P. Cochins, B. Ply. Rocks, and S. C. Brown Leghorns. Send for instructive catalogue.
4tfdb **O. E. SKINNER, Columbus, Kansas.**

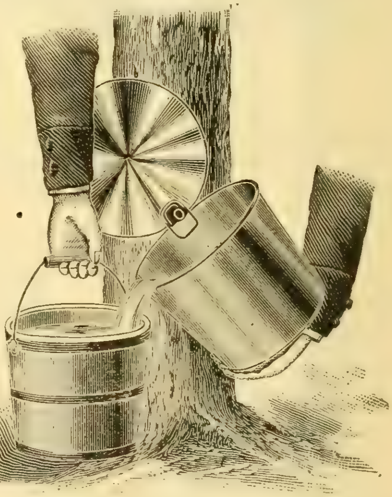
Grand Rapids LETTUCE
Seed, 35 lbs. for $25.00, or $1.00 per single lb. Grown from Root's seed and
GUARANTEED STRICTLY PURE.
This seed was grown especially for a friend, who is unable to use it; now we offer it at the above price in order to sell quick. References given if required. S. F. & I. TREGO, Swedona, Ill.

POULTRY. Choice Fowls and Eggs for sale at all times. Finely illustrated circular free. GEER BROS., St. Marys, Mo. 21tfdb

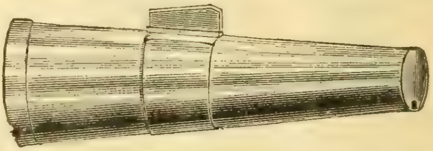
ST. JOE, MO.
We have the latest hive out, and the only full stock of supplies. Write E. T. ABBOTT. 4tfdb

POSITIVELY by return mail I will ship warranted purely mated Italian queens at $1 each; tested, $1.50; select tested, yellow to the tip, $2. I guarantee satisfaction, and refer you to A. I. Root, W. Z. Hutchinson, D. A. Jones, or my thousands of customers.
W. H. LAWS, Lavaca, Seb. Co., Ark.

Sugar-Making Supplies.
Maple-sugar-making time is at hand, and some are inquiring the price of supplies. First, you should supply yourself with that excellent book by Prof. Cook, "Maple Sugar and the Sugar-Bush;" price 35 cents; by mail, 38c. By studying this you may save many times the price of it. Notwithstanding the advance in the cost of tin, we are able to offer you sap-buckets and spiles and cans at last year's prices, as below:



Above cut shows a bucket hung on wire loop, with hinged tin cover, and manner of emptying.



IMPROVED RECORD SAP-SPOUT.
Record sap-spouts, $1.00 per 100; $8.00 per 1000
10-qt. buckets, IC tin, $16.00 per 100; IX tin, $18.00.
12-qt. buckets, IC tin, $17.00 per 100; IX tin, $19.00.
Patent hinged covers, $6.00 per 100. Reversible wood covers, $4.50 per 100. Wire loops for wood pails, 30c per 100; for tin pails, 25c per 100. 1-gal. square cans, 50 or 100 in a crate, $12.00 per 100. Boxed 10 in a box, for re-shipment when filled, $1.50 per box; $14.00 for 10 boxes.
A. I. ROOT, Medina, Ohio.

HONEY COLUMN.

CITY MARKETS.

DETROIT. *Honey*.—No change in price since last quotations. The supply is decreasing, and the market will be bare before the new crop is ready.
Beeswax, 26@27. M. H. HUNT.
Feb. 8. Bell Branch, Mich.

CHICAGO. *Honey*. The demand is not very large, but choice comb is selling at 15@16; other grades are slow at uncertain values. The demand for extracted is fair with prices ranging from 6@7@8.
Beeswax, 27c with demand good.
R. A. BURNETT.
Feb. 8. 161 So. Water St., Chicago, Ill.

CINCINNATI. *Honey*. Demand is good for extracted honey at 7@8 on arrival. Comb honey is in fair demand at 12@16 in a jobbing way, for best white. *Beeswax* in good demand, at 23@25 for good to choice yellow on arrival. CHAS. F. MUTH,
Feb. 8. Cincinnati, Ohio.

KANSAS CITY.—*Honey*.—Demand poor. Supply large of comb, 1-lb. fancy white, 15; dark, 8@9. Extracted, light demand, supply light; white, 7@7½; dark, 5@6. *Beeswax*, none on the market.
HAMBLIN & BEARSS,
Feb. 8. 514 Walnut St., Kansas City, Mo.

SAINT LOUIS. *Honey*.—Market tame; little inquiry. Comb 10 to 12. Extracted, cans, 6½@7. Barrels, 4½@5½. *Beeswax*, prime, 26.
Feb. 8. D. G. TUTT GRO. CO.,
St. Louis, Mo.

SAN FRANCISCO. *Honey*.—Honey remains very firm, as the prospects for next season, at the present time, are poor. We quote: extracted honey, 6@6¾c; and comb honey, 1-lb. 11@13; 2-lb., 8@11. *Beeswax*, scarce, 24@26. SCHACHT, LEMCKE & STEINER,
Jan. 23. San Francisco, Cal.

PORTLAND. *Honey*. The honey-trade has been somewhat dull since the holidays, and prices for comb are not so stiff as they were, although stocks generally are light. Fancy white, 1-lb., sell to-day at 16@17; darker grades, 13@15. Two-pounds, 1c per lb. less all around. White extracted, 8c; light amber, 7c. *Beeswax*, not quotable.
Jan. 11. LEVY, SPIEGL & CO.,
Portland, Or.

KANSAS CITY.—*Honey*.—The market is well supplied with both comb and extracted, selling slow. 1-lb. white comb, 14@15; dark, 8@12; white extracted, 7½; dark, 5@6. *Beeswax*, light supply, good demand at 23@26. CLEMONS, MASON & CO.,
Feb. 8. Kansas City, Mo.

ALBANY.—*Honey*.—The demand for comb honey continues light, and the supply is ample. Extracted in good demand with a small stock on the market. We quote: White-clover, 1-lb., 11@13; mixed, 10@11. Buckwheat, 8@10. Extracted, light, 7@8; dark, 6@7.
Feb. 11. CHAS. MCCULLOCH & CO.,
Albany, N. Y.

NEW YORK. *Honey*. Little demand for comb honey, with sufficient stock. We quote: Comb honey, white, 1-lb., 13@14; off grades, 11; buckwheat, 9. Extracted, basswood and clover, 7@7½; California, 7@7½. Southern, 65@70c gallon. *Beeswax*, scarce and advancing, 28@29.
Feb. 9. HILDRETH BROS. & SEGELKEN,
28 & 30 West Broadway, New York.

FOR SALE.—California 2-lb. section comb honey at 12c per lb. Wis. and Mich. 1-lb. section candied comb honey at 11c per lb. If you want honey of any description, write us. S. T. FISH & CO.,
4-5-6d 189 So. Water St., Chicago, Ill.

1892 Improve your stock! Get the best! Beautiful yellow Italian Queens from stock bred for business, as well as beauty. Orders booked now. 1648 queens sold, and never heard of but two mismated. Will be ready to begin shipping by May 1st. Warranted queen, $1.00; 6 for $4.50. **W. H. LAWS, Lavaca, Ark.** 1-2d

BEE-HIVES AND FIXTURES FOR SALE CHEAP. **WHOLESALE AND RETAIL.**

Send for illustrated catalogue. Send 25 cents for "Amateur Bee-Keeper," by J. W. Rouse, a book designed for beginners, sent postpaid on receipt of price. J. W. ROUSE & CO., MEXICO, MO.

Please mention this paper.

A POULTRY BOOK Called "The Chicken Business, and How to Make it Pay." Tells all about it. Finely illustrated, practical, and original. Price 50 cents, postpaid. An illustrated circular free, giving particulars about the book, and prices of pure-bred fowls and eggs for sale by the author. 4tfdb

H. B. GEER, Nashville, Tenn.

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Wants or Exchange Department.

A SUPPLY DEALER wants prices on sections, foundation, and smokers. W. H. PUTNAM, 1tfdb
River Falls, Pierce Co., Wis.

WANTED. To trade a large lot of Heddon hives, nicely made and good as new; some with combs complete for honey, now or after crop of '92. Write for particulars. Address D. S. HALL,
2tfdb South Cabot, Vt.

WANTED.—An apiarist to tend 190 colonies bees; foundation-mill, 2 extractors, and 200 lbs. comb furnished; also wagon and team. Will give one-half bees (increase) and one-half honey.
3-4d E. Y. TERRAL, Cameron, Texas.

WANTED.—To exchange a *new* 22-cal. Stevens rifle, with globe sights, cost $20.00, for an incubator; must be in No. 1 condition. 4d
J. S. WARNER, Medina, O.

WANTED.—To exchange $35.00 saw-table, Stover's Ideal feed-mill and horse-power combined, and a lot of job type. Want supplies and honey.
2tfdb O. H. HYATT, Shenandoah, Page Co., Ia.

WANTED.—To exchange, red raspberry and blackberry plants for pure Italian queens, or eggs from pure poultry. E. R. MILLER,
4-5d Garden City, Cass Co., Mo.

WANTED.—For 1892, as learners, two young men, brisk, honest, and temperate. Can back instruction by 35 years of active experience in apiary.
4-5-6 S. I. FREEBORN, Richland Centre, Wis.

WANTED.—A man to handle my bees the coming season. FILMORE COLE, Lima, O. 4tfdb

WANTED.—To exchange a fine target gun for foundation.
D. BENNETT, Union Furnace, Ohio.

WANTED.—Situation in an apiary, a single young man of four years' experience. 4-5d
A. C. FUHRMAN, Pleasant Home, O.

WILL exchange Italian queens for Brown Leghorn fowls or eggs. W. C. GATHRIGHT,
4d Toccopola, Miss.

WILL exchange lot 50 x 142 feet, well located, in Larned City, for high-grade bicycle, typewriter, or Barnes foot-power machinery. A. H. DUFF,
4d Larned, Kansas.

WANTED.—To exchange 60 straight brood-combs in L. frames at 12 cents each for supplies in flat. E. D. BARTON, East Hampton, Mid. Co., Ct.

WANTED.—At once, a man to go to Lake Worth, Dade Co., Florida. One who is competent to rear queens and take full management of an apiary. State age, experience, and salary expected per year. HARRY STITES, M. D., 1500 Sixth St., Harrisburg, Pa.

WANTED.—By young man, agreeable outdoor employment during summer, in a pleasant, healthful locality. Have a little knowledge of bee-keeping. Address H. B., Box 151, Bellevue, Pa.

Free. 28-page **RESTRICTOR** book. How to avoid swarms, brace-combs, and losses in winter. How to get bees into sections in one hour; and rear queens in full colonies, etc., same old fixtures. C. W. DAYTON, Clinton, Wis.
24-23db Please mention this paper

EARLY QUEENS,

FROM our branch Apiary in Texas, which is three miles from any other bees, and none but the **best FIVE-BANDED Golden Italian Queens** used to rear Queens and Drones. Our bees are the gentlest, best workers, and most beautiful bees known. Safe arrival and **entire** satisfaction guaranteed. one Warranted Queen, March and April, $1.25; 6 for $6.00. If you want the **best,** send for our circular **at once.** 1-24db

S. F. & I. TREGO, SWEDONA, ILL.

In writing to advertisers please mention this paper

BEE-HIVES, SECTIONS, ETC.

We make the best goods and sell them cheap.

Our Sections are far the best on the market.

Our Works turn out the most goods of any factory in the world.

Our goods are known as the best throughout the United States and Europe.

Write for free, illustrated catalogue and price list.

G. B. LEWIS CO., WATERTOWN, WIS.

Please mention this paper. 1tfdb

My 654 Colonies of Italians

Are wintering well, and, as usual, I will sell a limited number of them to reduce stock to the required number. Each hive shipped to my customers will contain a full prosperous colony of Italian bees, with a last year's tested queen, on eight Hoffman frames of brood and honey. As my main object in handling bees is honey, we raise all our queens in full colonies from cells built under the swarming impulse, using the choicest and most profitable stock to breed from.

Safe arrival guaranteed in May and first half of June. For terms please address

3-8db **JULIUS HOFFMAN,**
CANAJOHARIE, N. Y.

☞In responding to this advertisement mention GLEANINGS.

Good Queens Cheap.

300 tested Italian queens, raised last season, for sale at $1; $10 per doz. A few hybrids at 25c each. They will be shipped about June 15th to 25th, or later if desired. Have order booked now and send money when you want them. My bees have been *BRED FOR BUSINESS*, and these are bargains. Nuclei and full colonies at very low rates.

Send 25c for sample by mail of

THE UTILITY BEE-ESCAPE.

Thoroughly tested, practical and cheap. It cleans them out and they stay out. Any one can make it. Get a sample and make your own. 4tfdb

J. A. GREEN, Dayton, Ill.

☞In responding to this advertisement mention GLEANINGS

THE JANUARY REVIEW

Is now out. It contains articles from W. F. Clarke, and Ernest Root, upon "Writing for the Bee Journals." R. L. Taylor shows how much it costs, or *ought* to cost, to produce comb honey. Mr. S. Corneil explains how, with but little trouble and expense, any one may know if his bee-cellar is too damp. R. C. Aikin furnishes a long, interesting account of "Colorado, its Soil, Climate, and Alfalfa Farming, and how the latter furnishes Honey." The inimitable Hasty begins in this issue what is to be a series of articles entitled: "Comments on a Beginner's Day-Book." This "Day-Book" was kept by Mr. Hasty when he first began bee-keeping. E. T. Flanagan tells how he has bridged over poor seasons. Most of the articles are embellished with a portrait of the author. There are the usual extracts and editorials, including an account of the trip to Albany, and a "leader" upon the special topic for the February issue, viz., "Grading Honey." If you would like to see this number, send ten cents, and with it will be sent the December number; and when the February number is out, that too will be sent. The REVIEW is $1 00 a year. The book, "Advanced Bee Culture," is 50 cts. Both for $1.25. All new subscribers for 1892 will receive the December, 1891, issue free. Address

BEE-KEEPERS' REVIEW,
10tfdb *FLINT, MICH.*

☞In responding to this advertisement mention GLEANINGS.

RECORD BOOKS

Show that requeening, early in the spring, colonies having *old worn-out* queens, *more than doubles the yield of surplus*, and tends to

PREVENT SWARMING.

I make a specialty of contract orders for queens of the Leather-back strain of Italians. Queens ready to ship 1st to 10th of March.

A. F. BROWN,
HUNTINGTON, PUTNAM CO., FLA.
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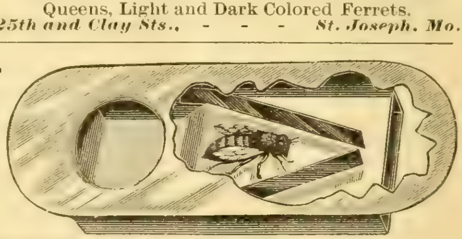

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GLEANINGS IN BEE CULTURE
JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS.
ILLUSTRATED SEMI-MONTHLY
PUBLISHED BY A. I. ROOT.
$1.00 PER YEAR. MEDINA OHIO

Vol. XX. FEBRUARY 15, 1892. No. 4.

STRAY STRAWS

FROM DR. C. C. MILLER.

PUNIC BEES are threatening a libel suit in England.

ALPAUGH'S SECRET is now $2. I'd like to know, but no use trying. I couldn't keep it secret.

THE ILLINOIS STATE society entered an earnest protest against opening the World's Fair on Sunday.

THREE-SIXTEENTHS of an inch is advocated as a bee-space by no less authority than J. B. Hall, of Canada.

THAT'S RIGHT, Mr. Editor. Keep A. I. down in Florida and Cuba till settled warm weather, then he won't spring dwindle.

PROGRESSIVE BEE-KEEPER is the new name of the *Missouri Bee-keeper*. It can't progress any further in getting up a neat, clear page.

NOW THAT there seems a general tendency toward 4¼x4¼ as a standard section, it seems too bad to start up 4½x4½ as a desirable size.

SO IT'S A FEW, and not the mass of bee-keepers this side the line that are making trouble with the Canadians. I wonder, however, if those *few* are not the *other* side the line.

FURTHER NORTH, say in Wisconsin, although colder, may be a safer place for outdoor wintering than in Northern Illinois. The greater amount of snow there makes it safer for the bees.

BLACK BEES are best, in the opinion of the *White Mountain Apiarist*, and Italians are being boomed by editors and others. But isn't it a rather long-continued boom, Bro. Ellinwood?

THE TWO CANADIANS, Corneil and Jones, are having a lively tussle over bacillus alvei. Jones says it's in honey, Corneil says "no." There's lots of grit and ability on both sides. May the truth win.

COLOR, in the scale of marking the Italian bee, as adopted by the North American convention, counts 5 in a scale of 100. Doesn't it generally count about 50? I think there were some level heads at Albany.

CELLARING has one advantage—greater security against thieves. Two combs have been taken out of one of my outside hives this winter, and a Wisconsin bee-keeper has had 13 hives of bees stolen within a few years.

ALFALFA FIELDS don't, one tenth of them, yield honey, according to R. C. Aikin in a valuable article in the *Review*. They're cut for hay before full bloom, and it's only fields left for seed, or scattering plants, that yield the honey.

FOUL BROOD may or may not be as plentiful as it has been, but it exists in Illinois where its proprietors defy any interference; and if it should break out to-morrow near you, you'd wish a law to meet the case had been made a year ago.

DADANT'S METHOD of rendering old combs, as given at bottom of p. 26, is all right as far as it goes—mash 'em up fine when cold—but a very important part is left out. *Soak* in water, and then the broken cocoons can't absorb a good share of the wax.

HON. EUGENE SECOR edits the "bee column" of *The Farmer and Breeder*, of Cedar Rapids. He knows enough to make a good editor, besides being president of the Iowa State Society and of the North American, and a really nice man at the same time.

I'M GLAD that bright bee-keeper, Capt. Hetherington, couldn't stand it to keep in his shell any longer, but had to go to the convention at Albany. But I've never blamed him one bit. I'd rather be a recluse than to run a free tavern with an information-bureau attachment.

A BEE-SPACE—formerly it was ⅜ of an inch, now it is scant ¼. But doesn't it make a little difference where it is? Any horizontal space over the bees needs to be less than a perpendicular space to one side. Isn't the old ⅜ space about right still, between end-bars and end of hive?

THE *Guide* darkly hints that the life-members of the N. A. B. K. A. expect to have control of the World's Fair exhibits, and that outsiders may have trouble getting their traps on show. First I'd heard of it. But say, friend Hill, if that's so, bring on your things; I'll promise to get you in.

THAT DRINK on page 8 troubles J. A. Green. I think that drink's all right, Jimmie. The yeast is to make it good. So it is in bread. The effect of a quart, or, for that matter, a gallon of it, after it is "good for use," would be just the same as so much water sweetened with honey. Did you thought it was 'tosticatin'?

THE DADANT HIVE is very popular in France. The apicultural congress at Paris decided to change the size of the frame from 16.5 x 10.6 to 15.7 x 11.8 inches inside measure. Mr. Dadant, in *Revue Internationale*, very properly protests against having the name "Dadant frame" applied to any thing so different from what he approves.

FOUL BROOD, where it has been killed out and reappears again, F. Morel-Fredel, in the French *Revue*, thinks, may have been preserved by wasps, bumble-bees, or hornets, from which the bees are infected anew. He also thinks the disease may be acquired by sound bees working on flowers which have been visited by foul-broody bees.

Gladstone says: "I have always taken great delight in my garden, and do not think I shall ever be old enough to lose my interest in seeing things grow. If the season is propitious I frequently spend the half-hour before breakfast among my flowers." I wonder if that has something to do with his vigorous mental powers in his 83d year.

Queen-excluders under surplus-chambers, a correspondent of the *B. B. J.* thinks, are not needed over the whole surface of the hive, but only at the front and back end, and a thin board over the rest. He says the bees don't go up through the middle of the brood-nest, and the full-sized excluder gives much more room than is needed for bees to go up. Somehow I'm afraid the bees will not work quite so well over the board; but actual experiment only would settle it.

RETURNING SWARMS TO THE PARENT HIVE.

DADANT EXPLAINS HOW TO DO IT AND NOT HAVE THEM SWARM OUT AGAIN.

Friend Root:—The inclosed letter from J. S. Willard explains itself. Mr. W. desires that we should give in Gleanings the particulars of our plan of returning the swarms to the parent colonies to keep down increase. You will remember that this was mentioned in Gleanings for 1891, page 541, and called forth a number of inquiries from bee-keepers in different localities.

Messrs. Dadant & Son:—In describing your plan of keeping down increase by returning the swarm in 48 hours, you do not say *where* to hive the swarm in order to save the bees that have their new home located; and, also, would you hive them in an empty hive on starters? A friend of mine wanted me to write you for particulars about that plan of returning the swarms; and, in fact, I thought I should like it myself too, and very likely several of the readers of Gleanings would like to have you describe the plan more minutely; and if *you* think so, you can write a letter to Gleanings at your leisure.

Bedford, Iowa, Feb., 1892. J. S. Willard.

We wish to say, first, that this plan is not of our originating. We saw it first in the *Cours d'Apiculture*, of Hamet, published in Paris years ago. Hamet advised this plan more particularly for the secondary swarms. In those days of box-hive bee-keeping there was but little need of returning primary swarms to their colony. But we tried this method on primary swarms, and with good success. We notice, also, that a number of apiarists have tried it the past summer with fair results. Hamet says: "The swarm which is to be returned to the parent colony should be hived like any other swarm, and placed as close to the old colony as practicable. The next day, or the day following, the swarm should be shaken in front of the parent hive, just as is done in uniting several swarms together. They should never be returned the same day, as they would surely start out again in 24 hours. When they are returned after a lapse of time there is a fight between the queens, if the young ones are hatched, or the returning queen destroys the others in the cells."

Collin, in his book, "*Le Guide du proprietaire d'Abeilles*," advises the apiarist to place the swarm on the old stand and remove the old colony to a new location, waiting till the queens are all hatched before bringing it back. But this method has one objection—the swarm remains too long in the new hive, and raises brood in it, and this brood is practically lost.

The plan that we followed, and which we recommend, is to hive the swarm into an empty hive with frames and guides of foundation, exactly as if it were intended to be kept, and to place it near the old colony. In 24 to 48 hours, shake all the bees in front of the old colony. The combs that have been built in the meanwhile will never come amiss, and the few eggs laid will hurt nothing. It would be still better to remove the old colony from its stand, and return it when removing the swarm, and also to destroy the queen that has the least value—the queen of the swarm if very old, or the young queen if the old one is valuable. In fact, it is better that the old queen should remain, as bees are more likely to swarm with an unimpregnated queen than with a laying one.

We believe that this method prevents further swarming, only when the hive is in such condition that it would not have sent forth a second swarm. The issue of the first swarm puts an end to the swarming fever, the supplementary queen-cells are destroyed by the young queen, and one of the two queens vanishes in a duel when the swarm is returned. Unless the season is very favorable, the time for swarming passes away before the bees find out that they have been fooled by the apiarist, especially if he has provided ample room for their surplus honey.

As most of our bee-keeping friends well know, we are no longer comb-honey producers. For a number of years we have raised nothing but extracted honey, and therefore have no need of this method of preventing increase, for (Dr. Miller to the contrary notwithstanding) in an apiary properly run for extracted honey, there is no swarming to speak of. Every time that we have had swarming to any extent it was when we had infringed upon the rules that require that a colony of bees be supplied with a sufficient amount of empty combs ahead of need, during the entire honey season. It may be of interest to our readers to know how we found out the value of Hamet's advice on the return of the first swarm to the parent colony. It was in 1876. We had a number of colonies of bees in the apiary of our friend A. Daugherty, residing in Rocky-Run township, some 14 miles from us, in a very good honey-producing district. The season was a rushing one, and we were behind. The bees were swarming wherever they had not been provided with a large stock of empty combs. Friend Daugherty, who had some 80 hives of bees, including ours, found himself short of empty hives, and began harvesting the swarms in any kind of box, in nail-kegs, in flour-barrels. When our junior reached his apiary with a wagonload of empty hives, there were some 12 hives full of bees, that were not hives at all. So we began transferring the bees out of these boxes into the movable-frame hives, by shaking them out in front. The bees had been hived from one to three days previously, and had but very little comb built in their odd-shaped homes. Strange to say, they were so ill satisfied with the unceremonious transfer that every swarm left the new hives provided for them, and went back home to their parent hive. None of these hives swarmed subsequently; and as the latter part of the season was unfavorable they were the hives that made the best crop.

We hope the above is a sufficient explanation, and that Mr. Willard and others will find in it enough to pay them for the trouble of perusing it. Dadant & Son.

Hamilton, Ill., Feb., 1892.

[If we understand the matter the whole secret is this: The hiving of the swarm in a separate hive beside the old one and allowing them to remain there for a day or two gives sufficient time for the bees of both colonies to feel themselves as belonging to separate households.

Then when they are united there is war with the queen, and the swarming fever is forgotten. This is a valuable item, and we should like to get reports from others.]

THAT CANADIAN IMBROGLIO.

DR. MILLER OFFERS SOME NUTS FOR THE ONTARIO COMMITTEE TO CRACK.

Notwithstanding the fact that I am singled out as one of the evil few who were anxious to oust Canadians from the North American Bee-keepers' Association, the action taken by the Ontario Bee-keepers' Association came to me with a surprise as utter as it was painful. What! desire to be disassociated from that body of bee-keepers which includes in its numbers many whom I highly esteem, men whom I love as brothers! Have I so soon forgotten the kindly spirit shown by the Canadians at the Toronto convention? If, in reality, I had any desire to remain separate from them hereafter, then I should certainly have no word to offer in reply. Or, if the action of the Ontario were simply a withdrawal because further affiliation were considered unpleasant or unprofitable, then I could only regret the loss and submit in silence. But when false charges are made, even if they arise entirely from misconception, then, for the sake of those whose good opinion I value, I may be allowed a reply.

The first charge made is the feeling "on the part of some United States bee-keepers to regard and speak of the North American as a national institution." It is true, that the society was often called the "National" for short, and I think that is all the evidence there was of such feeling, or, rather, of such supposed feeling, for I am sure that for one I never had any other thought than considering the Canadians just as much brethren as the Georgians or Texans. Looking over the pages of the history of the society, characterized by Rev. W. F. Clarke as that "admirable compend" for which "we all owe a debt of gratitude to our friend Thomas G. Newman," I find it called the "National Society" in the minutes of 1878; and in 1884 a motion seconded by a Canadian, S. T. Pettit, appoints a committee "to consider what modifications, if any, should be made in the *National* Society." "Rev. Wm. F. Clarke, of Ontario, spoke at some length on this resolution. . . . He said it was first intended to call the society by the name 'National,' but at his request it was called 'North American,' so as to include Canada. It was often called the 'National Society,' but it would be more proper to call it the International, for such was its real character, and such he hoped it would continue." In all this it hardly appears that the term "National" was looked upon as any thing betokening any wrong feeling, and it is hardly possible that Mr. Clarke so considered it. As corroborating this view, Mr. Clarke, in a written address at the convention of 1890, said, "I do not know of any ill-feeling that rankles among us." So I think it looks pretty clear that Mr. Clarke himself being judge, there was nothing to complain of up to the convention at Keokuk in 1890.

It may be well, also, to mention that at Columbus, in 1888, the name of the society was changed to "International American Bee-Association." As no other countries than the United States and Canada were represented in the society, it certainly does not seem that the adoption of the name International contemplated driving out the Canadians. Moreover, the adoption of this name was at the instigation of Thomas G. Newman, who is held up as one of the bad few. Two years later the name was again changed to the present one, Mr. Clarke himself proposing the change.

I think it is pretty clear, therefore, that, up to the meeting at Keokuk, all was smooth sailing. At that meeting it was proposed that the society be incorporated. That incorporation was and is the head and front of our offending. The committee on organization and incorporation in their report, right in the very act of furthering the matter of incorporation, recommended that the constitution should read in its first sentence that the society "shall include in its territory all of the United States and Canada." Does that look as though they supposed incorporation would throw out Canada? It is true, that Mr. Clarke objected that incorporation would affect the international character of the society; but his thinking so did not make it so, and it was explained that there would be no abridgment of its powers or limitation of its scope by means of incorporation.

The Ontario report complains that at Albany the committee on incorporation vouchsafed no information as to the terms, conditions, or effects of incorporation, but confined themselves to the bald statement that they had done as they were bidden. Why should they say any thing more? They were directed to do a specific thing—to get an advantage for the society. They did as instructed, and then came saying, "We've got the advantage." What more was necessary?

The Ontario report recites that at Albany one of the committee, in answer to a question, was told that the association was now local, but its influence would be national. This does not agree with the printed minutes, in which E. R. Root replied to Mr. McKnight's question, "It is incorporated under a State law, but its influence is national."

Objection is made to the word "national." Now, if the mental machinery of others is like mine they would think of Ontario, New York, Illinois, etc., as all one, when speaking of the society, and the word "national," in that case, would have just the same meaning as the word "international." I feel pretty sure that Mr. Root and Capt. Hetherington both used it with that signification, and still more sure that Mr. McKnight so used it in his question, "Is not incorporating it under a State law making a local society of what was a national body?"

The Ontario committee says it has "come to the conclusion that Canada has no rights under the new state of things, and that it was not intended she should." The committee has simply come to two very false conclusions. I don't believe that a single man that favored incorporation believed that it would take away any of Canada's rights, and I fondly hope that some of my Canadian friends have still confidence enough in my word, vile offender though I am held up to be, to believe me when I say that I had not the most remote intention or desire to do any thing to make the rights of Canada less. I am very confident that the rest of the vile few were of the same mind.

The hint is given that the States other than Illinois suffer from the same limitation as Canada. Most assuredly they are affected in the same way, and yet it has not come to my knowledge that a single word of protest has gone up from any one of them. Surely, the committee ought to find in "the great body of American bee-keepers, which it believes are not responsible," and to which it tenders "assurance of continued fraternal good will, high consideration, and cordial regards"—surely among these these there ought to be found not a few ready to rise up in earnest protest against any wrong done to Canada and the States outside of Illinois.

Now, in all candor, let me ask what harm has incorporation done? What right, just tell one little, lone right, that Canada had before incorporation that she now lacks? In what way is the North American any less "broad and international" so far as the society itself is concerned, than it was before? Will the meeting in Washington be any more local than its predecessors? What single thing has ever been done by the society that it could not equally have done if it had been incorporated at its first organization? What single thing is there that it can not do in the future that it could do if it were not incorporated? Will any one of the four gentlemen who signed that report answer these questions? I am sure that room for their replies will be given in the same columns that admit the questions.

I have too high esteem for the sound heads and kind hearts of Canadian bee-keepers to believe that any misunderstanding, as I am sure it *is* a misunderstanding, shall lead to any permanent estrangement. The truth will come uppermost, and we shall know each other better.

Marengo, Ill. C. C. MILLER.

A BOUNTY ON HONEY NOT DESIRABLE.

THE OBJECT OF PROTECTION; CHEAP SUGAR, ETC.

Our prohibition friends have a good deal to say concerning special privileges granted by the government to the liquor-traffic. A class of "reformers" demand that the government shall provide buildings for the storage of agricultural products, and insist that they are asking no more than about what is now granted the liquor-traffic. Now, it seems that a few bee-keepers are disposed to ask that honey shall be granted special favors similar to those supposed to be granted whisky. Did it ever occur to these friends to account for the reluctance of whisky in accepting these special favors? Why! it requires an army of vigilant officials, assisted, in some instances, by Winchester rifles, to persuade the whiskey-men to accept these alleged special favors.

The object of a protective duty is to guard a domestic product against the liability of being crowded out of our own market by a foreign competitor. From Root's price list we ascertain that the prices of some grades of tin plate are as low now as they were three months before the "McKinley Bill" was reported to the House, and on no grade has the price been enhanced to the extent of the additional duty levied by that bill. To protect tin plate it does not necessarily follow that the prices which obtained two years ago shall be advanced or even sustained; but it is necessary to guard against a repetition of that kind of competition which quickly suppressed former attempts to manufacture the article in this country.

Yes, when sugar was admitted free the price to the consumer was cheapened to the extent of the duty removed; but does any one believe that a like reduction could or would take place in the prices of salt, linseed oil, and wire nails were they placed on the free list? Does any one know of a locality or of a country where manufacturers sell salt at 10 cents a barrel, or where consumers can buy linseed oil at 15 cents a gallon, and wire nails at $1.50 per 100 lbs.? When coffee was put on the free list, did the price, in spite of trusts, go down and remain down? I merely refer to these subjects to indicate the difficulties to be met in any attempt to formulate cast-iron rules concerning the effects of tariff prices.

The protective system aims to build up all important American industries; but, to date, the sugar industry has not built up to speak of —it's a going to. Now the beet sugar is making promises. The existence of this industry, at present, seems to depend upon protection; and as it has been clearly demonstrated that the consumer pays the full amount of the duty levied on sugar, and that the price of the domestic article, in this instance, is also enhanced to the full extent of the duty levied on the imported article, it seems that it would be better for our people to pay only the duty on the small amount produced here. Under the present law we pay no more to the producers of domestic sugar than we had been paying to them during the last two decades.

But is honey, under present conditions, entitled to bounty? To get it, it will require a much stronger case than has been made up yet; and you may rest assured that there is no immediate danger of being incumbered by a bounty on honey.

A few years ago strawberry-growers—some of them—were demanding protection against bananas and a few other foreign fruits. I believe their demand was not complied with; but strawberries are still grown, and the demand for them continues good. At present I feel like classing this demand for a bounty on honey with that demand of the strawberry-growers.

E. Springfield, O. R. M. REYNOLDS.

BOUNTY NOT DESIRABLE.

SEALED COVER, ETC.

An impression seems to have gone abroad (and I find it in last GLEANINGS) that the comb-honey industry is independent of the price of extracted honey. Let us not be over-confident. I find a class of customers who would rather have comb honey, but are willing to pay only about 2 cents per lb. more than the price of extracted. It would be only just, no doubt, to have a government bounty on honey; but I am sure all kinds will need it alike. But I fear the "Government Stamp" as a protection to bee-keepers (page 13) would prove a delusion and a snare, and so would the "trade-mark."

THE WINTER PROBLEM.

I believe Ernest and G. R. Pierce (p. 952) are on the right track. My top cushions are often very damp, and in this condition combs are apt to become moldy and bees sickly. If upward ventilation is the thing, why do bees always seal every thing except the entrance as tight as a drum? I think I should like your new Dovetailed chaff hive, only I fear the chaff wall is not thick enough for our climate. We require a thermometer which is very long at the *lower end.*

Then for the new-old system of wintering mentioned above, it would need a bee-space over the frames to take the place of the Hill device used under cushions; also several years' experience on a small scale leads me to favor Dr. Miller's idea of an inch or more under the bottom-bars. This, of course, would be impossible in bodies intended to be interchangeable with supers, but the chaff-hive body is permanent.

WHO IS THE INVENTOR?

It may be easy to determine who is entitled to the credit of introducing this or that improvement; but the name of the inventor may be Legion. Take, for instance, your new hive-rabbet. Not liking the sharp edges of your old rabbet, I several years ago devised the identical form which you have adopted; but not finding a tinner who had a folder which would make it, I continued to use "finger-cutters."

NON-BURR-COMB FRAMES.

I agree with M. H. Hunt as to double top-bars in modified Hoffman frames. They are *perfection* in preventing burr-combs, and excellent in other respects; and when made of one piece, with the bee-space cut out with a saw, as you suggested last spring (or was it longer ago?) they could not be very expensive or complicated. Then, too, the new comb-guide could be made the same as in your new thick-top frame. BURDETT HASSETT.

Bonair, Iowa, Jan. 29.

RAMBLER'S HIVE-HOBBY RIDING.

DR. TINKER EXPLAINS HIS HIVE AND SYSTEM, AND HOW HE CAME TO ORIGINATE IT.

It was possibly unintentional on the part of Rambler, in his sketch of hive-hobby riding, page 54, to convey a wrong impression to the public concerning my hive. The idea sought to be conveyed in hitching my hive to Heddon's is, that I have copied after or borrowed from the New Heddon hive. If I have an incorrect view of the matter, and it was intended on the part of Rambler solely as a bit of his inimitable and ever appreciated good humor, I shall hope he will set me right. I desire to state, however, once and for all, that my hive is not copied after the Heddon hive, and that I do not practice nor recommend any part of the Heddon system.

The hive I use and recommend is a Langstroth hive, and represents no principle not embodied in the Langstroth invention. It is constructed with the bee-spaces and the simple suspended brood-frames of the great inventor, that are now in use by bee-keepers the world over. It differs from the standard hive only in size; and it may be of interest to know why I made such a hive.

In 1881 Mr. Doolittle gave to bee-keepers the first published ideas on the subject of contracting brood-chambers in the production of comb honey. To him also belongs the credit of developing the idea, by writing several articles upon the subject, until many bee-keepers, including myself, were interested. About this time (1883, I think) Mr. D. A. Jones introduced queen-excluding zinc to this country, and the bee-keepers were not a few who saw that, if we contracted our brood-chambers, we should be compelled to use a queen-excluder between the brood and sections. So the new zinc came into immediate use, and I began contracting all of my hives used for swarms by means of the zinc. About this time I made the now well-known wood-zinc queen-excluder, and put it to use extensively. The proper size of a brood-chamber for a swarm to be worked for comb honey to the best advantage was soon determined. It was found that, if the brood-space given was too small, much pollen would go into the sections; and if too large, the bees stored a part or all of their best honey in the brood-chamber. After many experiments I decided that all that was necessary during the active working season, both for swarms and for full colonies, was a "brood-chamber for brood," as I have so many times stated in the bee-papers, and that such a brood-chamber contains about 800 square inches of brood comb. It is then not a half or a divisional part of a brood-chamber, as in the Heddon hive, although it is smaller than the standard; but it represents the utmost limit of profitable contraction, and requires an extra story for spring breeding. As I used a hive of this capacity long before Mr. Heddon made known his invention, and am also original in its use, I believe that my rights to it will be respected by the mass of bee-keepers.

For several years I made the hives with Quinby frames, but finally, about six years ago, changed to the suspended Langstroth frame without altering the capacity of the original frame used in my experiments. I have since used no other hive or frame.

I call it a "storifying" hive because it is made on the principle of the Simplicity and Cowan bee-hives that were so made that the stories could be piled one upon another as high as desired. In using the hive for comb honey the sections are always placed upon the first story; and any extra stories that may be on the hive are carried to the top of the sections. By conducting these operations at the proper time I am able to prevent swarming, as a rule; and if an occasional swarm does issue in an apiary it is very easily re-united with the parent colony, thus disposing of all undesirable increase. In this management I am also original so far as I know.

Thus it will be seen that my hive stands upon its own bottom, and is neither borrowed from Heddon's nor from any one else, nor is the management advised the same in any particular, except in so far as bee-hives have always been managed. DR. G. L. TINKER.

New Philadelphia, O.

[The Tinker hive, although shallower than the Langstroth, may resemble somewhat the Heddon hive; but from the reading of Dr. Tinker's book, the system of manipulating it is very different from the plan used by Mr. Heddon with his hive.]

COST OF COMB HONEY.

MR. DOOLITTLE CONSIDERS MR. TAYLOR'S FIGURES.

Along in the seventies, a bee-keeper living some three miles from here was afflicted with a cancer. He went to a distant city to be cured of the same. While away he wrote me that he wished I would go to his place and put his bees in the cellar for him, as it was then time of year for the bees to go in. I went and did as he requested, being gone from home half a day, for which I charged him $1.00. On his return I asked him if he found the bees in good shape, and he replied that they were in splendid order. He then asked me how much he was to pay me, and I told him. Although quite a wealthy man, he thought I had charged him too much, and said he could have got such a one, mentioning a man whose capacity people considered worth about his board, to have set the bees in for 25 cts. I said nothing at the time, but led him out about the curing of his cancer, and asked him how long the doctor was, all told, in taking out the cancer and dressing the wound. He thought that, if all the time he saw the doctor was put together, it might amount to about two hours. I then asked him what he had to pay him for taking out the cancer, and he said $50. I next asked him why he did not get "such a one," meaning the 25-cent man alluded to above, to take out his cancer, and thus save the extra $49.75 he had paid the doctor. He saw the point at once, and, without a word further, handed me out the dollar.

I was reminded very forcibly of this little incident in reading what R. L. Taylor has to say regarding the cost of comb honey on page 56 of a late issue of GLEANINGS. It seems strange to me that Mr. Taylor should be willing to so belittle our pursuit as to allow only $45 for an apiarist who has sufficient brains to do all the necessary work which 150 colonies of bees require during six weeks in the height of the honey season. Why! the man who has only brains enough to break stone on the highway is not asked to work that length of time for a penny short of $52.50, in York State, that being $10.50 more than Mr. Taylor allows himself, who is said to be a noted lawyer, a senator, and a man of unusual ability. I wonder if he would not have been mad if it had been said that the Hon. R. L. Taylor earned only $45 for the six weeks he represented his State at the capitol. And is not his time worth just as much in the apiary as it is in the senate or anywhere else? I do not see any need of this lowering the standard of our calling, that a large "*net profit*" can be published to the world. Where is James Heddon, that we hear no warning from him about putting the rosy side of bee-keeping before the world? Is the keeping of bees such a menial service that the one who works at the calling can be allowed only $1.07 a day and board himself, while the *profits* on that same labor amount to $10.50, should the season prove an extra good one? I protest against any such showing. He leaves out many items of cost, such as our bee-papers and books, time to read them, attending conventions, taxes on bees, hives to put the bees in, sugar for winter, feeders, and work of feeding, etc.

Let me try my hand at the matter, and let Mr. Taylor rest assured that I shall make no charges for *the fun* part of our pursuit, which he fears the "wife and children will not grow fat on." Interest on bees, and wear and tear on plant, $120; double interest on 150 Heddon hives, $54; taxes, $6; sections, $25; foundation, $30; shipping-crates, $40; hauling honey to railroad, freight, and commission, $125; bee papers and books, $5; attending conventions, $20; sugar for winter stores (10 lbs. per colony where the Heddon hive is used, as the combs are expected to be nearly empty in the fall), $70; time spent, as follows: Reading bee books and papers, attending conventions, feeding, making crates and sections, fastening in foundation, packing honey for market, taking bees in and out of cellar, and other manipulation, 40 days, together with 41 days required during the honey harvest, making 81 days needed during the year to properly care for an apiary of 150 colonies. This time at $5.00 a day (not an unreasonable figure for an intelligent apiarist), amounts to $405, which, together with the other items of expense mentioned above (which foot up $495), makes $900 as the cost of running an apiary *properly* for one year.

Now for the income: Seasons, or something else, seems to have changed; and where 50 pounds of comb honey was considered an average yield per colony 12 years ago, and 45 pounds five years ago, the average yield at the present time can not well be called more than 40 pounds, according as I have summed up our yields during the past three or four years. At an average of 40 pounds for the 150 colonies, we should have 6000 pounds of honey as the income from the bees, which, at 15 cts. per pound, would amount to $900, or the same amount that the cost was. Hence I conclude that the cost of a pound of comb honey at the present time is 15 cents, and all that it brings us over those figures is *net profit*. When I gave figures very similar to the above to the N. A. B. K. A., in 1887, according to the report of that convention, Mr. R. L. Taylor was the first man on his feet, and said, "In the cost of honey there are many points to be considered, and Mr. Doolittle has not mentioned all of them; for instance, the losses in winter and from disease. I think the prices given are *too low*." Italics are mine. I then called the average yield 45 pounds, and arrived at the conclusion that the cost of a pound of comb honey was 13 cents, and Mr. Taylor immediately arises and says it is "too low." What has happened on the horizon of his vision that has so changed his opinion during only about four years of time? I there allowed the man the whole year to work the bees at $1.25 per day; but if valuable time is to be used, as Mr. Taylor puts it, and a less number of days be spent, then $5 a day is none too much for *skilled labor*. G. M. DOOLITTLE.

Borodino, N. Y.

[This question is somewhat complicated, and there is plenty of opportunity for error and incorrect assumptions; and perhaps our correspondent, though usually so accurate, has laid himself open a little. A merchant, after a year's successful business, after deducting expenses, has a certain amount of profit. This profit usually represents the price for his labor. So in like manner the amount paid for ordinary labor represents so much profit to the laborer. It is not quite clear how Mr. Doolittle makes his honey cost 15 cts. His crop being sold, at a charge of $5.00 per day for his labor, he has $405 in pocket—all this made off the bees. This we regard as largely profit, although it would appear, from what Mr. Doolittle says, there is no money in comb-honey production for him. But Mr. Doolittle did, or does, as he has said at other times, all or nearly all the work himself, hiring no labor. Much of the preparatory work which he does himself at $5.00 per day could be done just as well by a girl or woman at 75 cts. or $1.00 per day; for instance, folding sections, putting in starters, filling hives - crates with sections, scraping sections after being filled, and much other work, could be done by cheap help. If his time is worth to him $5.00 per day it would put more money in his pocket to devote it entirely to expert work, leaving the non-expert work to cheap help. This would *save* him $4.00 per day for much of the work, and a dollar saved is a dollar earned.

Now with regard to the work in the apiary. We have no trouble in getting good apiarists—those who can do any thing among bees, such as producing a high grade of queens, or producing honey, for from $1.50 to $2.00 per day, and they will do it just as well as we, providing we supervise or superintend the work. The cost of doing certain kinds of labor should not be regulated by what *we* can do it for, but by what we can hire it done for, and yet have it done as well. If Mr. Taylor can hire his work among the bees done for $1.07 per day, under his direction, while he can earn by his profession from ten to twenty dollars per day, it is to his interest to do so. We can hardly see why, then, he ought to figure labor in his apiary at ten or more dollars per day, when, in fact, he can get it done for $1.07 per day.

A farmer once said, who valued his labor at $2.00 per day, that he couldn't make any thing raising crops because they cost him to raise them all he got for them. If he received cash to cover cost according to his way of thinking, the fallacy of this argument is shown by the fact that he pockets $2.00 for every day he worked on the crops just as soon as he received the cash.

From these and other considerations we can not see how Mr. Doolittle's honey costs him 15 cts. per pound. He doesn't produce honey or raise queens and sell at cost. He is, as we all know, a successful bee-keeper; and when he charges himself $5.00 per day for labor, and gets that much in return, he is getting good pay, or, if you please, profit. The fact that he has a beautiful and comfortable home, and something laid up besides for a rainy day, as he has told us, proves this. It is quite possible that Mr. Taylor may have figured the price of labor and the cost of colonies in Heddon hives too low; and it is possible that he has not allowed enough for the cost of incidentals. We would not, however, figure "going to conventions" in the cost of producing honey, for this is the "fun" part of bee-keeping. Reading bee-journals and bee-books is usually to be done at odd hours in the evening, and this really should not figure very largely in the cost.

It will be seen, however, that Mr. Hilton put the cost even lower than did Mr. Taylor. He is a careful and practical bee-keeper, and one who has made money with bees. We are glad to give his article right here.

HOW MUCH IT COSTS TO PRODUCE COMB HONEY

FOR A PERIOD OF TWELVE YEARS.

The cost of the production of comb honey, like the wintering problem, the grading of honey, and many other things in which latitude and locality are controlling factors, will never, in my opinion, be satisfactorily settled. Could I have made this report four years ago, when my average for eight years had been 75 lbs., I could have shown the minimum cost in this locality. But the past four years have reduced my average for a period of twelve years to 50 lbs. per colony. In making this report I shall mass the twelve years' effort into a single report; and while this (my home yard) has varied from 35 to 90 colonies, I find the average has been sixty, or the

Total number for twelve years	720
Pounds of honey produced	36,000
Cash receipts	$5,200

COST OF PRODUCTION.

Value of apiary	$3,600
Interest on same at 8 per cent	288
Cost of manipulation	360
40,000 sections at $3.50	140
300 lbs. foundation at 55c	165
3000 shipping-cases at 8c	240
Total cost of production	$1193.00
Cost of production per pound	$3\frac{3}{10}$c
Net profits in twelve years, with an average of sixty colonies each year	4007.00
Net profits per pound	$11\frac{1}{10}$c

I suppose this report will be criticised. Friend Taylor, in his very able report, places the cost of production, with an average of 50 lbs., at $5\frac{6}{10}$c: but he has a list of items of costs that are, with me, all included in the cost of production, as my work is done principally by students. The work of putting up sections, putting in foundation, packing honey in shipping-cases, etc., is all done during the honey season, or immediately at its close. Friend Taylor also figures his gross receipts at 15 cents, and deducts freight and commission from this, while my sales have averaged me 15 cents, freight and commission deducted, which would in part account for the difference. You will also see that my labor costs me much less than Mr. Taylor's. The work is all done with a system, and upon general principles—so much so that my students find much time for other work. In fact, should I give the apiary credit for what they help me in the supply department it would nearly pay their wages. Our manner of manipulation might be of interest, but would be out of place here. I admit there are other expenses in the apiary than the above—foundation for the brood-nest; hives and fixtures for the increase; but in the above we have made no account of queens sold, nuclei, full colonies, etc. While these come from the sixty colonies spring count, it is another account which pays for all these and leaves a margin.

Since commencing this report the January number of the *Bee-Keepers' Review* has been placed on my desk. I have stopped long enough to read an article from the pen of E. R. Root, and will profit by his advice, and make this report short. GEO. E. HILTON.

Fremont, Mich.

[We should be sorry to have this discussion stop right here, and we hope our bee-keeping friends will give us further data along this line.]

EXTRACTED HONEY.

EFFECT OF POOR QUALITY UPON THE POPULAR NOTION THAT EXTRACTED HONEY IS LARGELY IMPURE.

I got both a setback and an uplift from a grocer in Springfield the other day. I wanted him to help us out at our fair by offering premiums on honey extracted on the grounds. He said, emphatically, "No; it would not pay me or any one else. Exhibiting an extractor, even in operation," he said, "would have little or no effect in removing the largely prevalent opinion that extracted honey is generally manufactured or adulterated;" that the only way to do that is to produce and put on the market honey of first-class quality. He said good quality would sooner or later remove the prejudice against any thing. He cited butterine as an illustration. That, he said, is now made of such excellent quality that many prefer it to butter; that it is, in fact, *better* than half the country butter. I should not be surprised if that were so, that many Chicago merchants advertise, "We sell butterine." But much or all of the popular suspicion as to the purity of honey is due to its inferiority; and that a high standard of excellence would sooner or later remove that impression, we feel sure. He has handled considerable of my honey, labeled with my name and address, and he says that, after a trial, his customers cease to question its purity. The above reminds me that a lady acquaintance, who has been living in Chicago for a few years, was back on a visit last summer, and came to me for some honey. While here she told me she could hardly get any kind of honey there but extracted, and that was hard to get pure. I expressed my doubt as to its impurity as politely as I could; but she insisted that she had bought some she knew had been adulterated, because it was not good—it did not taste like honey. Then I told her it was probably honey that had been injured some way after it was extracted; that, to care for honey properly, is a very choice matter, and that I feared many who produce considerable of it were quite ignorant on that point. I admitted to Mr. B., the grocer, that honey, if ill cared for, would deteriorate until it would probably become inferior to the spurious article.

Of course, I argued with Mr. B. that an extractor in operation would prove a great educator; but I had to own myself convinced, that, to a great extent, what he said was doubtless true; and I take the above method of introducing the subject here. Is it not true, that a great deal of very poor honey is produced and marketed when it need not be so? I know an intelligent bee-keeper who said he kept his honey tightly bunged up in a barrel in the cellar, and thought it kept very well. This honey he afterward shipped to market. I would not risk storing mine thus. I never tried exactly that expedient; but some years ago I filled some waxed kegs with honey, bunged them closely, and left them on the ground for awhile—how long I do not now remember. At another time I had a stone jar full, into which I think a little water leaked; if not that, it was not sufficiently ripened when it was extracted. In both cases the honey became flat in flavor from a loss of its richness, and at the same time acquired a sharp, acid taste. To allow honey to absorb a little foreign dampness, especially if it is afterward exposed to even a moderate summer temperature, or to extract it while yet rank and watery, will always have that effect upon it. Hence honey can not be safely kept in a cellar—I doubt whether even in a cemented one, unless it is so sealed as to be proof against air and moisture. But if it is stored in a warm dry room it will steadily improve in body and richness. This second or third rate honey *may* do for use in curing tobacco, but not generally for table use; and it is very easy and natural for the consumer, ignorant of the nature and different qualities of honey, to conclude that such is adulterated. I once sampled some honey in a store, nicely granulated, that I would not give one cent a pound for.

Now, I submit, is there not a great deal of ignorance or carelessness on the part of large producers in caring for honey, or even downright dishonesty on the part of some in putting such honey on the market? And is not the abundance of such an inferior article, to a considerable extent, the ground of the prevalent belief that honey is largely a bogus commodity? I incline to think, from the evidence I have obtained, that bee-keepers are themselves to a great extent responsible for the state of things which they so much deplore.

PARTNERS IN THE HONEY-BUSINESS.

I saw in Mr. B.'s store some beautiful white honey in one-pound sections, put up in nice pasteboard cartons, bearing the name and address of some Smith, from somewhere in Vermont. He got it from a house in Indianapolis, and, freight charges included, it cost him a little over 15 cts. per pound. I wonder if it did not go through a commission house in New York, or some place else. I thought, "How many people made a little money out of that little lot of honey—a part of their living, if you please!" Of course, the grocer gets a little himself. Then the railroads between Indianapolis and Springfield got a little; the firm at the former city got a little; the railroads from Vermont got a little, the maker and printer of the cartons got a little, the manufacturer of the sections got a little, the foundation-maker got a little, and it may be a firm in New York and another railroad got a little. What a stir a little honey or a little hog can make in the business world! A wonderful fabric, this country—this world of ours! Query: How much did Smith get? Geo. F. Robbins.

Mechanicsburg, Ill., Jan. 25.

BICYCLE OR TEAM.

E. FRANCE SAYS A BICYCLE WOULDN'T DO FOR HIM.

Ernest R. Root tries to make us think that the bicycle is the cheapest thing to be used, in visiting out-apiaries. Well, for him perhaps it is. It depends altogether on why you are going to make the visit. If you have local help at the apiary to do most of the work, and you are just going to call to see how things are running, or are going to get a few queens to take home to fill orders, or something of that kind, then the bicycle is all right. But I can not see how it would do for me, or any of our large bee-keepers. We always have too much to take along. We usually make our first trips around the last of March or first of April—an inspection visit; then we carry a keg of honey, 150 lbs., and fifty 3-lb. feeders. I don't know that we shall want to feed, but we want the feed and feeders along, and must take the team. After this first trip around we make two or three more trips, before the extracting season commences, to see that all is right, clip queens, etc., and always take our keg of feed along. When white clover blossoms enough so the bees are making a living, then we take along the extractor and some help, so we can take out every drop of honey there is in the hives so it will not be mixed with the white honey. We *must* have a team. Then when honey-gathering is in full blast, and we expect to take out 2000 lbs. of honey per day, we have to go with two teams—one team to haul the honey, and the other one to haul the help, etc. We have two horses of our own, and hire two more at the livery. During the extracting season we have all the wagons we want of our own. We are also working a little farm of twenty acres, and have to have one team.

DO THE BEES OF THE LARGE BEE-KEEPERS USE UP THE BEES OF THE SMALLER ONES?

The small bee-keepers are apt to think that their bees stand a poor chance when there is a large apiary near them. When I first began to keep bees around about Platteville there were a great many farmers who had each a few colonies of bees, and some of them as many as 100 stands. Now there are but few who try to keep bees at all. How often I hear complaints about my bees like this! They say, "France's bees have robbed all my bees—stole all the honey, and killed all the bees. I can not keep bees any more. France gets them all." We have had poor seasons, and bees not properly cared for have starved out. But the blame all falls on my bees. In one sense, perhaps my bees have done some of the mischief, inasmuch as they have picked up the honey pretty close. But did not their few stand just as good a chance as my many? Of course, they did. Well, what is the matter then? It is all in knowing how to take care of the bees. Can we expect a man to prosper in any business unless he knows how to run that business? A great deal depends upon small details—little things that appear to be of no consequence. It is a small thing to look into a hive and see whether there is feed to last through the winter. "Why," he says, "I simply took off the honey that was stored on top in the boxes, and the bees have all the hive full below;" when, if he had looked carefully through the hive, he would have found that he had taken off about all the honey they had in those boxes; then the bees die for want of feed. Then he blames another man's bees for his loss, when it was his own ignorance.

In wintering our bees outdoors, what shall we put over them—a cushion or a honey-board sealed down tight? This is a question that I am asked to answer through Gleanings. I suppose that you are aware that we winter all of our bees out of doors—at present between 500 and 600 colonies. We have wintered outdoors most of the time for thirty years, and have had very good success. We have tried a great many plans to insure the safety of the bees. We now use a honey-board over the bees—that is, a board made of ⅞-inch pine, cleated at both ends to prevent warping, and large enough to cover the colony tight and let the bees seal it down with propolis. We do all that is to be done for the bees by the middle of September, then let the bees seal the board down tight, and don't break the sealing again until the first of April, and then only to see if all is right. I don't want a particle of air to pass up through the bees during the winter; give them some vent at the entrance, but none on top. When the honey-board is on and sealed down, place a cushion, 5 or 6 inches deep, over the honey-board, or fill the top chamber with straw. This top covering helps to retain the heat. Put your hand under this covering in winter, and the honey-board feels warm—in fact, warm enough to melt snow in the coldest weather. We have tried putting a six-inch chaff cushion on the bees below the honey-board; but that won't do, as the chaff in the cushion becomes wet, and the bees dwindle bad and come out weak in spring. I believe that the bees' instinct to seal up all cracks and openings in the hive is correct at least, as far as the top of the hive is concerned, for outdoor wintering. When you put bees indoors to winter, you give them an unnatural place to pass the winter, and they may require different treatment. I have no doubt that they do. In fact, I never learned to winter bees successfully in the cellar; but having, of necessity, to winter on summer stands, I have studied and experimented a great deal on how to winter outdoors, and I think we have the thing now down to a safe point. Use a large deep hive. If the L. frames use two stories, have the upper story filled with good honey. Put on a tight honey-board early enough to get it sealed down, with straw or other good packing above the board. Give them a good windbreak, and then let them alone until spring. A quadruple hive is better than a single hive. E FRANCE.

Platteville, Wis., Jan. 25.

[Why, friend France, we are afraid you did not read our essay very carefully. We did not recommend the bicycle for every one—only for the bee-keeper who runs one or two out-apiaries. In the spring, when we go out on the bicycle, we give the stores by alternating combs. By a little intelligent forethought, many things can be so arranged as to make it unnecessary to carry things on the wheel, even though it were practical. At the request of several friends I have presented the essay as it was read at the convention.]

BICYCLES VERSUS HORSES FOR OUT-APIARY TRIPS.

AN ESSAY BY E. R. ROOT, READ AT THE MICHIGAN STATE CONVENTION.

One of the obstacles in the way of establishing out-apiaries is the expense necessary to make the trips to these yards. That expense usually involves the keeping of a horse and buggy; and when it is further increased by bad roads for six months in the year (during which time the capital invested in the horse, buggy, barns, etc., is lying idle, to say nothing of the daily labor) it becomes quite a serious obstacle indeed. I have had experience in the horse-business, as some of you may know. I know what it is to have almost impassible roads for six or seven months in the year, during which a horse can not be driven either for business or pleasure. I know what it is during this time to clean the stable, doctor a horse for mud-fever, for a month or six weeks; I have experienced the lively sensation of being kicked clear across the barn, and then on my back, panting for breath, scarcely knowing whether I had a whole bone or not. I have been run away with a couple of times, and know how exhilarating it is to feel that your life is hanging on a thread. I know what it is to have horses get into bee scrapes, having had one horse killed in one such, as you may remember—a noble animal for which I was offered $175 that very day. I know something of the cost of keeping buggies, horses, stables, etc., in repair. After having had this experience, my ardor in the horse-business has gradually waned. I must make trips to out-apiaries; and to walk to them would be too slow; and to use one of my father's horses—well, they were always busy cultivating, or something of the sort, in the garden.

As soon as I sold my last high-flyer I forthwith bought me a high-grade Safety Victor bicycle; and most of you know the rest. After having ridden it several hundred miles among the bee-keepers of the East, I found it indeed a most serviceable horse for making trips to our out-yards. On arrival at the yard I could leave it leaning against the fence, and not be in mortal terror that the thing would be stung by a bee, and cut up some awful caper.

I am no expert rider, but I found that I could make trips to our out-apiary, on an average, seven miles, in about three-quarters of an hour. When I tried to do something real smart, I rode ten miles, bought an apiary of 80 colonies, returned home, all inside of two hours. As it took me about 20 minutes to complete the bargain, the total time on the road of 20 miles was a little over an hour and a half. But the roads were good. On other occasions I have made 30 miles in three hours; 45 miles in five hours. The latter distance was made over the hills of York State. Now, this, no doubt, may look like a big yarn to some of the uninitiated bicycle-riders; but I am stating absolute facts. I do not give these figures to boast, but simply to show what an average man has done with a machine after a little practice. Now then: It will be seen that the bicycle is a great time-saver in making trips to out-apiaries. No horse —at least very few—would undertake to make such time. "But," you say, "such rates of speed must be a severe strain upon the constitution of the rider." Experience in my case proves that it is not, but, on the contrary, it proves to be a wonderful tonic to the constitution. The muscles of the leg develop wonderfully. But how is it, you may ask, that a man can travel so much faster than the average horse? The cushioned tires, ball bearings, and the gearing, give him an immense advantage over his dumb friend.

Perhaps some young bee-keeper will say, "I would have a bicycle if I thought I could ride it." It is no trick at all to balance one. Almost any one can be taught to ride them in half an hour's time. Even our friend W. Z., I am told, mastered the machine in twenty minutes; but in order to make speed and cover distance, it takes a little time to develop the muscles, and learn a few nice points in guiding.

"But," you ask, "doesn't riding seven miles to an out-apiary make you very tired—in fact, weary — too much so to do a day's work?" Strange as it may seem, it does not. Riding is one sort of exercise, and working over the hives is another. A different set of muscles in either case is called into action. Most of the care of our out-apiary last summer devolved upon the writer personally. I have taken a trip down in the morning, worked all day, and come back in the evening, tired, perhaps, a little, but no more so than any one else who has done a full day's work. At other times, when I have had a spare hour or two, I would mount the wheel, run down to the apiary, diagnose the hives, and give such attention as might be needed to this or that colony, then return, after about two hours' work. Now, the point I am getting at is this: A bicycle can be purchased for less than the price of an average good horse. The repair might be fifteen cents a year; oil for lubricating the bearings, perhaps another fifteen cents. Outside of that there is no other expense. Place this balance-sheet over against that for the expense of a horse, barn, hay, labor, repairs, etc. Now see how your account will stand. Well, a young man can make his trips to his out-yards, on the wheel—yes, make nine-tenths of his trips in that way. How about hauling the bees home? As a general thing, a farmer in the vicinity, with his double team, can be hired to do the work for you—that is, hauling—for a crate of honey or a small consideration in money. He can also be hired to haul home your crop of honey, and bring back all the supplies that you may need. With a little forethought, all these things can be carried in a few trips. In the spring, for hauling the bees to the out-apiaries, if the services of a farmer are not available at that time, a livery may be hired at about two dollars a day. Ten dollars ought to cover all the expense of hauling for at least one yard, and possibly two. Even if it were twenty, this would be a great deal cheaper than taking care of a horse for one year, to say nothing of the other expense, first cost, interest on the money, and other risks.

If you are a bee-keeper and also a farmer, then the horse would be more serviceable. But the point I would urge, in a nutshell, is this: That a young man in a locality where the roads are not sandy, can manage a system of two or three yards cheaper with a good bicycle, supplemented by the aid of a farmer or liveryman, than he could to keep a horse, buggy, and all the other paraphernalia connected with the horse-business. I have tried the scheme for one year, and I think I know something of what I am talking about.

In conclusion, let me add that I do not advise the use of a bicycle for elderly men.

[The above we had not intended to publish in our own journal; but as there has been some inquiry as to what we had to say on that subject, we give it in answer thereto.]

THE HIBERNATION OF THE HONEY-BEE.

TRUE HIBERNATION EXPLAINED BY MR. P. H. ELWOOD.

Mr. S. Corneil, of Lindsey, Ontario, Canada, writes us that Mr. Doolittle's article on hibernation, page 45, is somewhat misleading, and hoped we might see our way clear to publish an article by P. H. Elwood, in the *Canadian Bee Journal*, page 531, 1886. This article, he says, was a "settler" when the subject was up for discussion several years ago. No one ever attempted to answer it. We have looked up the article in question; and as it seems to cover the subject so thoroughly we are glad to make the accompanying extract from it:

What is hibernation? Marshall Hall says, "Sleep and hibernation are similar periodical phenomena leading to similar results, and differing only in degree." As Dr. Hall is probably the highest authority we have on the subject, and as his definition has been accepted by all investigators, it would seem to be well for smatterers in science to look up the standard definition and accept it, rather than to coin another which shall be accurate only in measuring the want of knowledge of its author. The Germans recognize hibernation as a peculiarly deep sleep, and their name for it is *winter sleep* (See Barlow's *Winter Schlaf*, Berlin). Do honey-bees hibernate, or is the quiet of winter only a sleep, or has it passed beyond sleep into hibernation? Dr. Edward Smith says a man in deep sleep expired 4.5 grains of carbonic acid per minute; on the treadwheel, 43.36 grains per minute. A waking hedgehog yielded 20.5 times more carbonic acid than one in a state of hibernation. Thus we have a ratio between sleep and waking of 1 to 10, nearly; between hibernation (not profound) and waking, 1 to 20.5. If, instead of the treadwheel, we take walking at three miles per hour (26 grains carbonic acid per minute), which exertion would correspond more nearly with that of the hedgehog, we have a ratio less than 1 to 6. Carpenter says of the bee: "When breeding, the evolution of heat and consumption of oxygen takes place at least twenty times as rapidly as when in a state of repose." This is the same ratio that exists between the hedgehog's hibernation and waking. But, dropping these comparisons as illogical, we may note the number of inspirations and the amount of food taken during the winter, which proves conclusively that, in its winter repose, the honey-bee has passed far beyond the physiological limits of sleep into hibernation. You will notice by the definition, that, where sleep ends, hibernation begins—there is no "quiescence" between. The daily summer sleep of the bat and dormouse is a true hibernation. Dr. Hall says, "The quantity of respiration is inversely as the degree of irritability of the muscular fiber, the former being marked by the quantity of oxygen consumed in a given time ascertained by the pneumatometer, the latter by the force of galvanism necessary to demonstrate its existence." The capability of passing into a state of hibernation depends upon the capability of taking on an increased muscular irritability. Were the respiration diminished without the increased muscular irritability, death would take place from the torpor of slow asphyxia; and were the respiration increased without the diminution of the irritability, the animal would die from over-stimulation, as in those suddenly aroused from the state of hibernation." As such trifling causes as walking over the floor, touching the operating-table, etc., are sufficient to excite respiration, hibernating animals adopt various means of securing themselves from disturbance; and when the temperature approaches 50 ° they seek out their hibernacles in trees, caves, and burrows in the earth. It was found that hibernating bats died when subjected to the motion of a stage-coach for a couple of days. The same treatment would undoubtedly seriously injure a hibernating swarm of bees. It was that close observer, Mr. L. C. Root, who first called my attention to the injurious consequences of the needless disturbance of bees during their winter sleep. And every farmer boy knows how unwholesome it is to be suddenly aroused from a deep sleep to immediately participate in the active duties of the day. How comforting to the rising generation that the doctors now say the process of awakening should be a gradual one !

Hibernation differs widely in different animals. While possessing the same general characteristics, yet in no two is it exactly alike; and we must not expect the honey-bee, which differs so much from every thing else of the animal kind, to conform in every particular to the already observed conditions of hibernation. In some animals, hibernation is very profound; in others, not. I have already given an illustration of the latter. A hibernating bat, in a pneumatometer, consumed but one seventy-second part as much oxygen as one awake. The bat may be said to belong to the former class. In some animals, before the period of hibernation a large amount of fat is stored in the body. This hydro-carbonaceous deposit serves as a store of heat and force during that period. In this class of profound hibernators, the total loss of weight is sometimes 40 per cent, or fully as much as usually sustained in starvation. Another class of hibernating animals store their chief supply of food outside of the body, and awake at intervals to partake of it. The marmot, hedgehog, squirrels, dormice, etc., belong to this class. To this class we must assign the honey-bee, the honey being the stored supply of heat and force. Some of this class have a partial dependence upon the fat of the body, but it is not asserted that this is the case with the honey-bee. Some bee-philosophers, however, maintain that bees kept on a short allowance through the fall and supplied later for winter, do not usually come through so well. There is also a small school of physiologists who assert that all carbonaceous food must first be converted into adipose tissue before it can be useful for the production of heat and force. This applies *equally well* to the honey of the bee as to the quarts of oil consumed by the Esquimau. According to Dr Hall, the hedgehog, in a temperature varying from forty-five to fifty degrees, awakes to eat at intervals of two or three days, depending upon this slight difference in temperature. The dormouse, which sometimes hibernates in bee-hives, awakes daily in moderate temperatures. Dr. Reeves says, "Lower temperature begins at the surface of the body and gradually approaches the center." This central part, as Dr. Hall, Spallanzi, and others have proven, remains permanently at a higher temperature. In hibernation, as at other times, a swarm or cluster of bees must be taken as a unit. Bearing this in mind, it is, as we should expect, that the center of a hibernating cluster is formed of a higher temperature than the outside, as Doolittle, Tinker, and others have noted. Most bee-keepers have noticed, on suddenly dividing a cluster of bees in cold weather, that the outside bees are somewhat lethargic, while those inside are lively and apt to fly out and sting; while if any of these half-awake outside bees fly they appear not to have control of their movements, and fall to the ground.

The heat of reptiles is from four to fifteen degrees F. above the heat of their medium, while the heat of individual insects is from two to ten degrees more than that of the air. Therefore it can not be said that reptiles or solitary insects hibernate as warm-blooded mammalia do. The same may be said of the individual bee. It is only when aggregated in clusters that a high and independent temperature is maintained. Hibernation must not be confounded with torpidity. The *American Encyclopedia* says: "The torpor produced by extreme cold is very different from true hibernation." And again, in another edition, "Extreme cold will arouse a hibernating animal from its lethargy, and speedily kill it." We all know that cold arouses bees. These, then, appear to be some of the leading chacacteristics of hibernation: An activity similar to but less than in sleep, with diminished respiration, but increased muscular irritability; lower temperature, lowest at the surface of the body, diminished need of food, and, when stored outside of the body, partaken of only at intervals of awakening, loss of voluntary motion, but continuance of involuntary motion. As bees possess so many of the conditions of hibernation, it seems reasonable to conclude that they hibernate. * * * P. H. ELWOOD.

[The article shows much painstaking care in its preparation, and, without doubt, the statements are correct, from a scientific point of view. Hibernation – at least with the bee-keepers on this side of the line – was pretty well worn out years ago in discussion; but we trust there will be no objection on the part of our readers to our giving what is both interesting and valuable. We presume Mr. Doolittle meant the same thing, even if he did not state it quite as scientifically.]

THE WINTER PROBLEM IN BEE-KEEPING.

MORTALITY OF BEES FOR THE LAST FEW YEARS: WHO FIRST ORIGINATED THE IDEA OF A SEALED COVER? SPACE UNDER FRAMES IN WINTERING; VALUABLE FACTS BY G. R. PIERCE, THE AUTHOR OF THE NEW BOOK ON WINTERING.

Mr. E. R. Root:—In your review of the above book, page 952, GLEANINGS for 1891, you make one criticism which I think needs a reply on my part, which I do, not with the design of provoking discussion, but simply to arrive, if possible, at the actual facts of the case. The criticism I refer to is as follows:

"The author has evidently placed the percentage of loss beyond what it really is. Twenty-five per cent would be nearer correct; and, among intelligent bee-keepers, ten per cent."

When I first commenced the study in a consecutive manner—of the subject of bee-mortality in winter, I endeavored to learn something positive in regard to the approximate average loss among bee-keepers; but I soon found that the question was a most intricate one, and that no solution could be reached which would at once commend itself to the bee-keeping fraternity. The reason for arriving at this conclusion may be formulated as follows:

a. There are no statistics, State or National, in regard to the bee-keeping industry worthy of the name.

b. Even the reports of bee-keepers, as given in the periodicals (agricultural and apicultural), when taken as a whole are found to be utterly valueless when scrutinized closely and compared with previous reports made by the same person. In order to illustrate this assertion, let us take a supposed case, which may be verified by any one who wishes to be informed on the subject in question. Let us suppose that Mr. B. is an intelligent bee-keeper who has 100 colonies which were placed in winter quarters in good condition. About the first or middle of April, Mr. B. writes to GLEANINGS, giving his experience during the winter, and saying that his loss has been, say, only 5 per cent, which is undoubtedly true. But in the September and October following, Mr. B. writes again to GLEANINGS, tells of the prospect of the honey crop in his neighborhood, gives his experience and opinion in regard to some of the methods or devices used in honey production, and closes by reporting his yield at, say, 3000 lbs. from 75 colonies, *spring count.* Now, Mr. B.'s two reports, when taken together, show that 20 colonies have mysteriously disappeared. It may be that Mr. B. is a breeder of queens, or that the 20 colonies were sold. I have no doubt that many of the reports given could be explained in this way. There is no question, however, that very many —in fact, the great majority, of the reports given in the press are misleading in this particular regard—no figures being given of total loss —only that which is apparent at the opening of spring.

Now, I do not wish to be understood as reflecting upon the honor of the men who from time to time give their experience through the press. I believe they aim to give the facts as they understand them; but, owing to the practice of reporting losses as soon as the bees commence to fly, they virtually ignore the subject of *spring mortality*, and yet the loss during the winter months is a mere bagatelle compared with that occurring during the months of March, April, and part of May if the latter happens to be a cold month. It is only when the weather becomes settled, giving continuously warm days and nights, that the effects of defective methods of wintering are fully apparent.

Again, there is another reason why reports of bee-keepers are, to a certain extent, unreliable as data upon which to base an opinion of the percentage of loss.

Bee-keepers have just about as much human nature in their composition as any other class of people. The "prominent bee-keeper" of a community is looked upon as an oracle in all matters relating to bees, and usually he does not exert himself to lower this public estimate, but, rather, enhances it by giving greater prominence to his success than to his failures. He may not do this intentionally, but the result is the same nevertheless; he is judged to be *uniformly* successful — a conclusion which the facts, if known, would not warrant.

I have found it exceedingly difficult to get figures from some bee-keepers as to their average annual loss of colonies. There is no diffidence in giving information in regard to yield of honey, or increase in colonies; but when the subject of *loss* is broached, there is a disposition to dispose of it as of no matter.

Several years ago I was considerably amused by a conversation I had on the cars with a bee-keeper from Illinois. I was deeply interested in the subject of wintering bees, and the talk very soon drifted into this channel. I was soon given to understand that my fellow-traveler knew (?) all about bees, if not a little more than all. From his standpoint the wintering question was of no particular importance—was more the result of ignorance than an unsolved mystery; he had no trouble in wintering bees, and did not see why other bee-keepers should. Seeing that loquacity was his weakness I contented myself with listening, only now and then asking a question at a favorable opportunity. I learned a great deal from this man—so much that I could not mentally digest it; and when I asked him to explain, instead of doing so he suddenly became comparatively dumb, and, at the first opportunity, retired to another car. Now, this man was as well posted on bee-keeping as the average; but he was keeping bees from year to year, apparently ignorant of the fact that a large percentage of his colonies died every winter and spring, simply from want of proper care. I know this to be the fact, because, in reply to my interjected questions, he gave me the following information:

a. He had about 75 colonies; 5 years before, he had 60.

b. He very seldom sold bees—no buyers.

c. He never "took up bees," that is, destroyed them.

d. He usually doubled his number of colonies each year.

e. He seldom lost in wintering more than two or three colonies—quite a trivial matter.

The average reader can readily see the point. When I commenced to devote attention to the subject in question I supposed that 25 per cent was a fair estimate of the average loss of colonies in the Northern States; but after a careful comparison of reports given in the bee-periodicals, and from my knowledge of the usual rate of loss in my neighborhood, I am constrained to believe that the figures given in "The Winter Problem" are not in excess of the facts. It is true, that there are some apiarists who winter with very small loss; there are also seasons when this loss is comparatively small in some localities; but in a decade this does not cut down the figures to a very great extent.

PRIORITY OF DISCOVERY.

Mr. Massie, of West Virginia, in Gleanings of Jan. 15, page 52, is rather disposed to claim the honor of being the first to advocate letting the bees seal the covers for winter. Very well! I do not claim any discovery in that direction, for I know from personal knowledge that the idea is at least 25 years old, and I rather think it is as old as bee-keeping. When the Langstroth hive was first introduced in Wisconsin, the main objections urged against it were, that it was too shallow for the bees to winter well; and that the top, being loose, more or less of the warm air from the colony would escape. The objections were met, by those interested, by the argument that the loose cover could be securely sealed by the bees *after* the honey season was over, and that the hive might, with but little labor or expense, have an additional covering of hay or straw. There are hundreds of bee-keepers who have for the past ten or fifteen years kept bees on this plan.

Neither do I claim to have first discovered the method of wintering in cases as described in my book, though I first used it during the winter of 1882. The plan is a very simple and rational one, and is only an improvement on the old method of covering with hay or straw.

A careful perusal of my book, "Winter Problem," will show that the setting-forth of new methods or devices was not the object in view; in fact, this is just what I wish to avoid. What I have aimed to do is to explain *why* bees perish in winter, and thereby show what *conditions* are essential and vital to healthy bee-life.

There is a wide difference between knowing *how* a thing should be done and *why* it should be done. The former knowledge is acquired by experience—is empirical; the latter can be gained only by an investigation into the working of the laws governing the subject under consideration—is scientific. Empirical knowledge may often be acquired simply by the use of sight—and memory; but scientific knowledge can be obtained only by a study of the relation of cause to effect. Let me illustrate the difference when applied to some of the operations of bee-keeping.

I have noticed of late that several of our prominent bee-keepers recommend the use of a rim under the hive in order to have an empty space about two inches deep—this, of course, only during the winter. I believe Mr. Hutchinson has, in one of his articles on wintering, said that colonies prepared in this way seemed to do better than those placed directly on the bottom-board, but frankly admits that he is unable to explain why this is the case. Dr. C. C. Miller, also, in "Stray Straws," Feb. 1, gives a quotation from the *British Bee Journal*, favoring the use of the space below the frames.

If I remember aright, this plan was first proposed by W. F. Clarke, of Canada, about the time that he introduced his "hibernation theory," and, as soon as I found it convenient, I tested the plan thoroughly in the following manner:

Ten colonies were wintered on their summer stands, prepared as usual, the hive resting on the bottom-board, and ten were placed with an empty hive—frames removed—under each one. These twenty colonies averaged nearly equal strength in honey stores and bees.

When winter set in I noticed that, during every sunny day *after a cold snap*, the bees in those hives resting on the bottom-board would be busy carrying out dead bees. The colonies over the empty hives did not, of course, need to do this, and this gave me the opportunity to see that many more bees perished from the hives prepared in the usual manner than from those having the under air-space. All experiments made in this manner confirmed the claim made for this method of wintering; and had I been satisfied to let the matter rest at this point it would have been positive evidence to me that an air-space under each hive was an absolute necessity. But this was the *how* of the matter, not the *why*. The placing of the empty hive under the several colonies was simply following a suggestion which had been proposed by another person; the explanation of the phenomenon was quite another matter.

The first fact that attracted my attention was, that the greatest loss of bees from the hives lacking the air-space occurred in the strongest colonies, judging from the appearance of the cluster at the bottom. This was rather remarkable, and the reader might explain it by saying that these colonies contained the largest percentage of old bees; but this was evidently not so; for it is not likely that all the colonies so constituted would be found in one class.

Again, another fact was presented: The loss was greatest in those hives where the bee-cluster *touched the bottom-board*.

I have not time to set forth all the methods adopted to solve the question, so I will explain and set forth the conclusion reached.

Of all the hive walls, the bottom is the coldest, and its temperature approximates that of the external air; therefore, when the weather is very cold, say 10 to 15 below zero (F.), unless the hive is well protected, the bees touching this cold surface will become chilled, and this loss will occur to the colony at every cold interval until, by its losses, it is enabled to cluster well up among the combs and away from the death-dealing bottom-board. This explains, I think, what bee-keepers have generally claimed, that bees winter better on deep than on shallow frames; and yet I do not think that an air-space below the hive is absolutely essential; for if the top of a hive is kept warm as I have described in "Winter Problem," the bees will naturally cluster away from the colder bottom; at all events, no rim would be needed except under those hives in which the bees clustered in such a manner as to touch, or be quite close to, the bottom.

When I first commenced to keep bees the wintering question was, during the cold season, the all-absorbing topic; and yet none of the books treating of bees entered into a real practical discussion of this particular part of the subject; and, judging from some of the questions proposed in the query column of the *American Bee Journal* and GLEANINGS, I surmise that the beginner now fails to find comfort in the bee-keeping text-books of to-day or he would not ask such a question as, "*What is the proper temperature for a cellar containing 50 colonies?*" for he would know that a proper answer to such a question requires a knowledge of all the conditions involved in his particular case. The same temperature will not do for a damp cellar as for a dry one; and where the colonies are in warm, well-sealed hives, the air must be kept cooler than when they are in loose-top hives. It is for this reason that some bee-keepers keep their bee-cellars at quite a high temperature, while for my part I pay no attention to low temperature as long as water in the cellar will not freeze; in fact, I regard a thermometer in a bee-cellar as of just about as much real utility as four legs to a wheelbarrow.

Blairstown, Ia., Feb. 3. G. R. PIERCE.

[It is to be regretted that we have not more accurate statistics upon which to rely; but from those which have appeared in GLEANINGS in the last three or four years, the percentage of bee mortality, as nearly as we can ascertain, was lower than what you put it. Still, these statistics may have been very misleading.]

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SEALED COVERS FOR WINTER.

ARRANGEMENT OF HIVES IN GROUPS.

I have not been a bee-keeper very long. I am following the advice of the A B C book, to "go slowly and carefully." After transferring a colony from a box hive I set the hive bottom up, and found it was so thoroughly glued over inside that it would hold water as well as a copper kettle. This made me skeptical about absorbents over a colony of bees. It is not their nature to thus prepare for winter. I have seen hundreds of bees in autumn gathering gum from gum-trees, and carrying it on their legs like pollen, to the hive, but I have never yet seen them gathering forest-leaves, swamp-moss, or even straw, and carrying it to their home as a protection from winter storms. Now, your idea of sealed covers over the frames is right; that is the way the bees would have it; and if you can not put on the board in time for the bees to glue it, why not paint the under side with a solution of beeswax and propolis, and wax the edges well, then put on all the packing you desire, to keep the moisture and cold from getting to the hive?

There has been a great deal said in GLEANINGS lately about the arrangement of hives for convenience in handling in summer, and much is also said about different methods of packing for winter. I will give you my plan; and if you think it worth a place you are welcome to it.

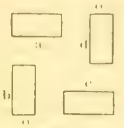

FIG. 1.

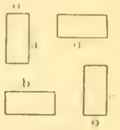

FIG. 2.

I arrange my hives on a pattern of Heddon's hive-stand, placing four in a group, as you will see by the diagram. Fig. 1 is placed for using the smoker in the left hand; Fig. 2 for using the smoker in the right hand. If I want to look into hive *c* I sit down on *d*, lay tools on *a*, puff smoke in at entrance *o* with left hand, take off the cover with the right hand; lay it on *b*, then I am ready for business. In Fig. 2 the smoker is held in the right hand, and the work done with the left.

For packing for winter I take a box made of any cheap lumber, that will answer, 3½ feet square, and about 14 inches deep; remove the hives from their stand; set the box on, and then place the hives in the box, in the same position as before, with entrances in the same place. Of course, four entrances are cut in the box to fit the hive-entrances. I then put in packing to suit my notion. Next winter I shall thoroughly paint boards with beeswax and propolis, and seal down tight on the frames before putting in the packing. M. M. RICE.

Dickeyville, Ind.

[We have grouped hives as you describe; but the objection to it is that the bees are flying in all directions. The S. E. Miller plan, which we recommend, see page 922, 1891, allows an alleyway for the bees for bee-flight, and an alleyway for the apiarist.]

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CLOSED-END FRAMES.

C. P. DADANT REPLIES.

Friend Ernest:—Allow me to correct a statement made by Mrs. Axtell, in the Feb. 1st number of GLEANINGS, page 97, saying that I never saw Mr. Axtell handle the closed-end frame. Mrs. Axtell is not to blame for the mistake made, for the reason that she was not present. The apiary where I saw Mr. Axtell handle the closed-end frame was that of E. A. Hanchet, Burlington, Iowa, May 8, 1878. You see that it dates back quite a few days, and it is not to be wondered that friend Axtell has forgotten all about it. As it was the first time that I had seen others than ourselves handle the closed-end frame, it made some impression on my mind. Some of our friends will perhaps wonder how I can so well remember the date. It is because this happened during the meeting of the Western Illinois and Eastern Iowa Bee-Keepers' Association, a very nice meeting, at which we first met Mr. Newman and many others, Mr. Axtell among them, though I believe we had met Mr. Axtell before; and I find the date in the old *American Bee Journal*. We were the guests of Mr. Hanchet; and at the dinner-hour a swarm came out and was hived. My remembrance is, that the queen could not be found, and that, as the swarm seemed restless, and it was necessary to make sure before going back to the hall of meeting, both the parent hive and the new hive were opened by Mr. Axtell. It was then that we both wondered how so practical a man as Mr. Axtell could advise the use of this hive.

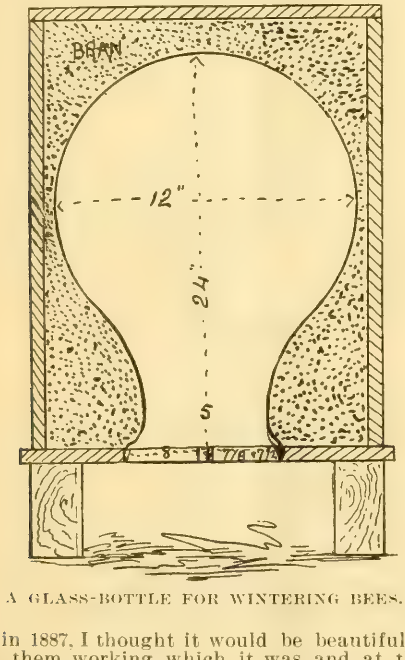
I have no desire to find fault with anybody's hive or frame; but I can not help noticing that even Mrs. Axtell acknowledges that bees are killed in this hive, even "with care." It is certainly more difficult to avoid killing bees with this hive than with the hanging-frame hive. But we all have our pets, and there are probably a hundred or more different styles of good hives now in use; and each owner would prefer his to any of the others, even if he saw them manipulated with greater success. C. P. DADANT.

Hamilton, Ill.

WILL BEES LIVE IN A GLASS BOTTLE ?

THE EXPERIMENT TRIED.

Five years ago I procured a glass jar, something in the shape of a pear, 24 inches high, largest diameter 12 in.; smallest, 5 in., and an eight-inch opening at the neck. I made a stand and box to cover it, and left an opening ⅞x7½ inches in the front. I have put a swarm in that jar every year for the last five years. They did very well until November or December, then they just died. Why? Well, "I don't know." There's the rub. At the time I first put a swarm in, in 1887, I thought it would be beautiful to see them working, which it was, and at that time there was a great deal of talk about upper and lower ventilation, so I thought this would settle the question.



A GLASS-BOTTLE FOR WINTERING BEES.

I said I put a swarm in every year. Well, there were never any bees living in it on the 1st of January. They generally died a little after the first cold spell, always leaving lots of honey, none of the queens over two years old. I have had blacks, hybrids, and Italians in it, but they all died. About the 1st of December I took a look at my bee-yard to see whether any tops had blown off. I found the bees in this jar dead, and combs very moldy. I cleaned it out and got four Mason quart jars of strained honey. Last fall this was one of the finest swarms. It had a queen one year old. Nov. 1st I had 116 swarms. They are all O. K. up to date, Jan. 9, except the jar. Why is it? I give my hives no protection whatever; but this jar was packed in bran. Of course, I shall try again and keep trying. In no year did the bees starve. They always had plenty of honey. J. F. LONG.

Scott Center, Mo., Jan. 9.

[We are surprised that the bees should have died as soon as they did, and the experiment was apparently a failure. It was J. A. Green, who once wrote about wintering bees in a large wide-mouth bottle, and here he gives something further on the subject.

UPWARD VENTILATION AND MOISTURE ABSORBENTS IN WINTERING.

INTERESTING SUGGESTIONS FROM J. A. GREEN.

When I first wrote on this subject, nine years ago, there seemed to be an almost universal belief that, to winter bees successfully, there must be a porous covering to the hive, with absorbing material above. The object of this, we were told, was to prevent the moisture generated by the bees from being deposited on the combs and inside of the hive in the shape of frost and ice. The current of air thus permitted to circulate through the hive, passing out at the top, carried with it the moisture. Under some circumstances this vapor-laden air passed out of the hive without depositing much of its moisture, in which case little immediate harm was done. Very often, though, the moisture was condensed in the packing material, sometimes making it quite wet, which was injurious, beyond doubt. The effects of this more or less pronounced draft through the hive, together with the wet packing, were most plainly seen in the spring, if the colony survived until then. The heat necessary for brood-rearing was kept up with difficulty, and colonies built up slowly. Strong colonies, of course, suffered least.

Having observed these things, I decided that the system of ventilation that had been found best for human residences was also best for beehives; namely, that the air to be removed should be taken out at the *bottom* of the room instead of at the *top*. I accordingly made my hives as tight as possible at the top, and left the entrance large enough so that the moisture-laden air might easily find an exit there. The result justified my expectations, and since then "upward ventilation" and "absorbents" have been things I have carefully avoided.

In a footnote to one of my earlier articles, the experiment you refer to on page 953 was proposed. Although I never wintered bees in a glass bottle, I did winter several colonies in tin cans and in other ways, by which I made sure that no particle of moisture could escape from the hives except at the entrance. These tests were entirely satisfactory, as all the bees so treated wintered excellently. They were never reported, because, by the time they were concluded, interest in the matter had largely died out, and other things occupied the bee-keeping mind. Since that time the current of opinion has been slowly changing, until now I think the majority of advanced bee-keepers would say that it is better to have the top of the hive sealed perfectly tight. Your experiments with hives having sheets of glass sealed tight to the top are interesting, because by them you can *see* that hives tight at the top and properly protected remain dry inside. I once had a colony of bees in a box hive with a glass side, and for over a month of the coldest winter weather they were close to the glass, which remained perfectly clear, so that I could see them at any time by removing the wooden slide over the glass. I used to look at them often, as I was anxious to learn the effect on them of disturbance in cold weather. They would readily respond to a tap on the glass, but paid no attention to the passing of trains only a few rods away. Even heavy charges of dynamite, used in blasting only a hundred feet away, produced only a momentary flutter of their wings, and, in spite of all the disturbance they were subjected to, they wintered well.

It is true, that there are some very successful bee-keepers who think a certain amount of upward ventilation is necessary. I think that all of these use very large hives, and carry on a system that gives them very strong colonies for winter. Such colonies are well adapted to resist the bad effects of upward ventilation, which is almost a necessity when such hives are used. A colony of bees can easily keep a small wintering apartment warm and dry, especially if no heat is allowed to escape at the top of the hive. But a large hive can not be kept warm. The moisture-laden air, instead of passing out at the entrance before it condenses, wanders off into the cold corners, and there deposits its moisture in the shape of frost. This, with very large and especially very tall hives, is unavoidable except by allowing a current of air to pass out at the top of the hive. In this, as in so many other things, different systems require different methods of management. I think a very large majority of practical bee-keepers will agree that a small hive, tightly sealed at the top, is best for winter, and especially so for spring.

Those who are interested in looking up what has been said on the subject will find articles by me on pages 42, 88, and 359, of GLEANINGS for 1886. The matter was brought up several years before, but was not discussed much until 1886.

A CORRECTION.

In my article on first page of Jan. 15th GLEANINGS, the word "undesirable" (second column, right margin) should have been "indisputable." The change of words, you see, makes a material change in the meaning. It is *indisputable* that the selling value of comb honey depends principally upon its appearance. This *may* also be *undesirable;* but that is not what I meant to say. Of course, in selling honey the *kind* and *quality* should be made known as far as possible; but when the price depends mostly upon appearance, let appearance be our principal guide in grading. If there is any dealer or commission man who can get more for a fancy article of dark honey than for a second or third grade of white, in markets where they come into free competition, let him stand up and be heard. J. A. GREEN.

Dayton, Ill., Jan. 26.

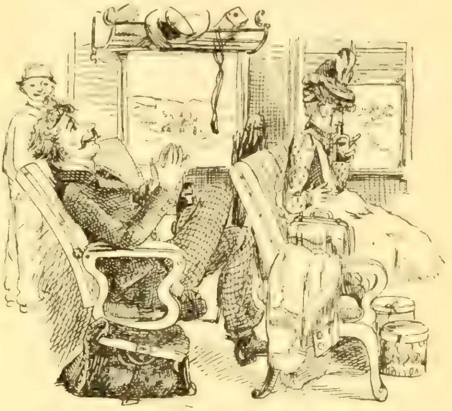
RAMBLE NO. 53.

FROM CHICAGO TO SALT LAKE CITY.

The next move on the Rambler's program was the purchase of a far-reaching ticket—a ticket that would land the possessor at San Francisco and the Golden Gate. As the train rolled out into the vast prairies of Illinois that bright July afternoon I felt happy again; and what a burst of poetry floated through my mind! Here it is:

I'm sitting in a double-jointed chair, jogging along,
Out o'er the vast prairie, praised so much in song.
Says I, "I do believe I'll have to ride and ride for iver,
To get beyond the smelling of that black Chicago River."

A female in a chair ahead had a bottle to her nose;
Says I, "Madam, it's a headache your having, I s'pose."
She riz right up, turned round with hand upon her liver,
And sneezed and hawked and spit, and snapped, "Chicago River."



RAMBLER'S REVERIE ON THE TRAIN.

I was right in the middle of the next stanza when the ticket-puncher came along and so distracted my attention that the burst poem has never returned. My elbow neighbor in the next reclining chair was a young man, posted on prairie matters, and gave me much information upon that subject. The shades of night put a stop to viewing the country, and we tilted our chairs back into the laps of those in the rear of us, and sought repose. My young friend had to get off the train about 2 o'clock at Cobble Hollow, somewhere in Missouri, so I kept awake on purpose to wake him up; so you may know that I felt outraged and defrauded when he awoke himself ten minutes before it was time.

Another young man came in and occupied his vacant chair; but I wasted but little time upon him, turned my face to the window, and slept.

Early in the morning Kansas City was entered, and an hour given for us to work out our salvation upon the delectable viands found in a railroad restaurant. I became quite well acquainted with my traveling companion during this hour, and, picking up a drummer who was going our way, we three had a very pleasant day of it all through Kansas. The length of this State will be realized when it is crossed; also the distance from the Missouri River to the Rocky Mountains. All day and all night we rapidly sped our way westward. The magnificent wheat-fields of Central Kansas were ready for the reaper, and the crop was never before so bountiful. All night it was Kansas soil we were upon. Away to the north the darkness of the night was broken by the flashing of lightning; a fearful storm was raging away over the distant prairie—not a mountain or hill to break the view. The electric display low down upon the horizon, and as far east and west as the eye could scan, presented a scene not soon to be forgotten. Morning dawned, and still upon Kansas soil; but the distant Rockies begin to appear; the line is passed into Colorado, and before noon the city of Denver is entered. Our stop is too short to let us see much of the city, and we are off again, passing in sight of Pike's Peak, through Pueblo, where we see the first adobe houses and the Mexicans; through the Royal Gorge and those lofty mountains we never tire of looking at. It was in these mountains that my new acquaintances left me; and for a time I felt lonely. Night again shut down upon the scenery, and, this being the third night on the rails, I slept quite soundly. In the morning I looked out upon the most desolate country imaginable—not a living thing in sight; not even a bush or a green spear of grass to enliven the red soil or the mounds and distant cliffs. One station passed was named Solitude, and rightly, for there was not a house or living being in sight. A stake and a cross-board with the name was all.

It was on this day's ride that I cultivated the acquaintance of a cowboy. He had been all the way to Grand Junction to attend a caravan.

Approaching the Great Salt Lake Valley the road follows the winding canyon and water-course. This water-course can be traced for miles by the narrow fringe of green on either bank, consisting of eucalyptus-trees and farm products; all outside this narrow fringe is dry and barren. The residences along this route are nearly all of the most primitive character; and I remarked to my new friend that people seemed to live in almost any thing, from a good house to a hole in the ground.

"Yes," said he, "and some haven't even the hole in the ground."

Just before entering the valley I saw the first Utah apiary. The hives were strung along in an irregular row, with stones on the covers. I wanted to get my Hawkeye to wink at it, but the train was in too great a hurry, and it was soon out of sight. After entering the valley, many thriving and pretty towns are passed; but Provo was the first having the real bustle and boom so readily noticed in the West. The train was full of smiling, talkative people in holiday attire. My cowboy friend left me at a previous station, and now a sturdy Milesian, who had lived in Utah 20 years, was discoursing to me about the great advantages of Utah, and especially of Provo, as a place in which to make one's life-abode. His remarks were strongly emphasized by wildly swinging his arm out of the car window, pointing out the variety of fruit-orchards, the enormous growth of alfalfa, and the general prosperity seen on every hand. I expected to see his arm irreparably damaged by coming in contact with a telegraph-pole; but he luckily escaped. His loud remarks called a young man to our vicinity, who wanted to sell real estate in Provo, the coming metropolis of the great interior basin. Arrival at Salt Lake City closed the importunities of these friends.

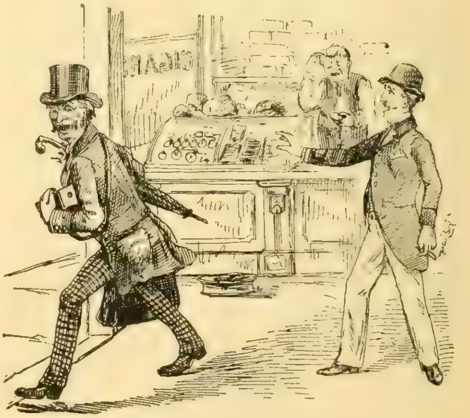
Salt Lake City has had such a reputation in the history of our country that I resolved to spend one day in this center of Mormondom. In the morning I sought the residence of Mr. John C. Swaner, and was disappointed when informed that he was some miles away managing a large apiary. I found the name of another person who kept bees, and sought the street and number, and was led out of the city where I could look all creation in the face. This was my first experience with the magnificent distances found in the West, and of which I shall have more to say when I get further. I devoted the rest of the day to looking over the business portion of Salt Lake City, and really fell in love with the place. The clear cold mountain water, purling like a mild brook down each street, has a special charm to it; and then the wealth of the water in producing so much vegetation for the sustenance of a large population, where, but comparatively a few years ago, there was nothing but barren sands.

A visit to the center of Mormon worship was my next desire. The magnificent temple is not yet completed. The Tabernacle, now used for worship, and several other buildings, are all within a high adobe-wall inclosure, and it is termed Temple Square, from which point all streets are numbered.

There is nothing ornamental about the exterior of the Tabernacle; in fact, its roof looks like an immense turtle. The interior is, however, noted for its elegance, its seating capacity (over 10,000), its wonderful organ, and its acoustic properties. A whisper, a rubbing-together of the hands, the dropping of a pin upon the altar-rail, can be heard in the most remote portion of the immense room. It was while perambulating around the Temple Square that the Rambler struck another friend. We discoursed pleasantly on all we saw, and then started down the street to see the beautiful house Brigham Young built for his favorite wife. My friend knew just where it was, and he was a wonderfully pleasant talker, this man from Denver. We had walked about a block when my friend said he must have a cigar, and stepped off the sidewalk into a little cigar-store, offering to treat; but when I declined he proceeded to light his own, and while doing so his eye caught several specimens of gold and silver ore on the show-case; and, being a mining man from Denver, he was immediately interested.

"Oh, yes!" said the man behind the case; "that's Utah ore, and here in the case are watches made from it; and in order to advertise our Utah mines and factory, we give any one a chance to draw an envelope from this box, upon the payment of $1.00. But," said he, "you two are strangers; just draw for fun, and see what you get."

The Rambler is always ready for fun in a quiet way, so I drew an envelope that entitled me to a gold watch. The envelopes were put back in such a manner that we could see the one I drew, and my Denver friend said he could draw the same one again, and bet $20 he could, and put up the money, and drew a watch. I suppose it was my turn to bet next; but up to this very point I had not a suspicion as to the nature of the men; but it came all of a sudden, and I exclaimed in a loud voice, "Bunco, by Jupiter!" My friends protested their innocence, but I suddenly left them to their own cogitations.



"BUNCO, BY JUPITER!"

In all the large cities of the East I had been on the alert for such fellows, and had frequently met them; but I was vexed to think that, away here in Salt Lake City, I should be so completely steered into a bunco-room.

That evening I pursued my way again toward California.

I learned from Mr. Swaner, that, in Utah, a modification of the American hive is used. Cloths are used over the frames, and much care has to be exercised in wintering.

Utah is a great fruit-country, and many apiaries are found in the orchards. Fruit culture and honey production thus go hand in hand, as they should. RAMBLER.

ANTS, PLANTS, AND BEES.

CURIOUS WAYS IN NATURE'S ECONOMY.

The following, sent us by Mr. P. H. Baldensperger, our correspondent in the Holy Land, is a translation made by him from a German periodical. It contains so many points of interest, well authenticated, that we believe our readers will be pleased and benefited by its perusal.

It is a well-known fact, that plants offer to bees, butterflies, and flies, the delicate nectar. In return, the insects unconsciously fertilize the flowers by carrying the pollen from one to another. But very often the insects, forgetting their duty, instead of creeping into the flowers simply cut open the flower outside the corolla, where the nectar is deposited, thus carrying away the sweet without touching the anthers, and so omit the fertilization. The bumble-bee finds it a good deal easier to cut open the tube of a red-clover blossom than to creep into the bottom of the flower about ⅜ of an inch deep. Darwin found almost every flower of a kind of heather, *Erica tetralis*, cut open in this way, and the honey carried off. But this way of robbing, contrary to nature's design, is very tiring too, as is reported by Prof. Magnus, who observed bees on the lion's-mouths (*Antirrhinum majis, L.*) trying the experiment, but they could not hold their position long on account of the evenness. They stopped only a few seconds and had to fly further, while otherwise they would stay a minute or two inside the flower, and by degrees they found plenty inside, and would again try to cut open the plant. Quite a number of tropical plants have a special preventive system against such culprits. According to Dr. Burck, of the Botanical Garden in Buitenzorg, Java, many plants have ant-guards against these robbers. Plants and ants are on friendly terms, as is known by divers kinds of South American trees which have numbers of protecting ants at their disposal, and they are fed liberally, and are ready to fight the leaf-cutting ants. They do their business very thoroughly. According to Dr. Burck's observations, the ant-guard system is enlarged in a very peculiar way. The enticement by which these plants gather the ant-guards around them consists in the secretion of honey outside the flower at the corolla, just at the point where the danger is apparent; consequently there are already some busy ants licking this secretion. The honey-glands, where this is secreted, are called the outer nuptial nectaries, to distinguish them from the inner ones, as they are not meant for fertilization. As soon as a bee observes the ant-guards on the outside it enters the flower in the natural way. Should it venture among the ants, it would be immediately laid hold of by its antennæ and legs, and it would be "done" with her. Besides this, it is seen that flowers without this guard, as the *Fragræa oxyphylla*, of the *Loganiaceæ* order, possessing no extra-nuptial nectaries, have 99 per cent of injured flowers, done by the carpenter bee (xylocopa). Another kind, *Fr. crassifolia*, has a few nectaries, on which Mr. Burck found only 70 per cent injured. But *Fr. littoralis* has more such nectaries, and only 40 per cent injured. Dr. Burck remarked, moreover, that a carpenter bee which had cut open 20 or 30 blossoms of the *Fr. oxyphylla*, and tried *Fr. littoralis* in the same fashion, had to give up at once and enter the flower on account of the ant-guards, though the three kinds of *Fragræa* resemble each other in shape, size, and color. Several such plants even provide their protectors with lodging, in shape of a recurved ear-shaped booth, affording shelter to these ants. Very often they also furnish these soldiers with ammunition — bread growing out at the flowers, having an albuminous and nutritious substance.

Thunbergia grandiflora more liberally feeds quite a number of ants the year round with such aliments; consequently the carpenter bee never approaches the outside of these flowers, but is obliged to look out for its business, and take the natural way.

PH. J. BALDENSPERGER.

Jaffa, Syria, Jan., 1892.

MANAGEMENT OF BEES IN TEXAS.

HOW L. STACHELHAUSEN DOES IT.

On page 893 of last year's GLEANINGS, Mr. A. C. Brown, of Smithfield, Texas, asks for information how to double his 45 colonies; and the answer of E. R. is just what we should expect from a bee-keeper with experience in the Northern States. With my experience in bee-keeping in Texas I would advise as follows:

Keep your colonies in the one-story hive, and let them swarm as they please. If you get small after-swarms, put two or three of them together in one hive. In a good year you will get as much honey, or more, from the swarms *and* the parent colonies, than you would do if the old colonies had not swarmed out at all. If the spring is not favorable your bees will not swarm much, and then it is better if you do not increase at all. Do not divide or make artificial swarms in any other way. To the new swarms you give no comb foundation, but starters of foundation about one inch wide, securely fastened to the comb-guides. Do not fuss with stimulative feeding, spreading brood, etc.; it does not pay in Texas. Of course, you have to feed your colonies, if they are short of stores and no honey is coming in; but, so far as I know, the bees will gather pollen in the spring anywhere in Texas. If the main honey-flow commences, do not fail to give plenty of room to every colony in an upper story; and now I would recommend full sheets of foundation in wired frames.

I have to explain to other bee-keepers why I recommend this way, so entirely different from the rules generally adopted in the Northern States. E. R. says, very correctly, that it is not the large number of colonies that brings the profit, but the rousing heavy colonies; but it is certain that two such strong colonies can do more than a single one. In most localities in Texas we have a moderate honey-flow from early spring till the end of May, and then commences our main honey-flow from horsemint. The bees swarm six or eight weeks before the horsemint is in bloom, so it is in good time for the swarm as well as for the old colony to grow to a rousing big colony. Just before swarming time the hive is full of bees; and if swarming is prevented in any way, the number of bees in this hive will increase very little if any. So it is plain that, in similar circumstances, it is more profitable to increase the colonies than to prevent swarming. True, we have some bad honey years, and the last three years in succession were such in my locality. This is the reason I did not recommend artificial increase. If the spring is so unfavorable that the colonies do not build up very fast, and consequently do not swarm, we should damage our colonies by artificial swarming. These swarms would be in a poor, starving condition; and if the horsemint will give some honey, swarm and parent colony are not strong enough to give any surplus. We may be glad if they store enough honey to pull through summer, fall, and winter. If the colony remains undivided it will give more or less honey in even a bad year. It takes an experienced bee-keeper, who is acquainted with his locality, to decide when artificial swarming shall be practiced and when not.

I recommended the giving of starters to new swarms only. After many experiments with combs and full sheets of foundation I settled on this practice, and recommended it for many years in the *Apiculturist* when all the other bee-keepers of the United States used and abused foundation. The reason, and my ideas about wax-secretion, I will give in another issue.

MY MANAGEMENT.

This, at swarming time, is the same. I work for extracted honey, and use large hives to make use of all the laying capacity of any queen; but nevertheless, my bees swarm. In the home yard I take the natural swarms. In out-apiaries I make artificial swarms if the spring is favorable. If the spring is so unfavorable that the bees do not store any new honey, but use up some of the old stores, it may happen that a sudden honey-flow may cause my colonies in the out-apiaries to swarm, and I should lose them. To prevent this I set one of my shallow cases with full sheets of foundation under every hive (in the out-apiary), and one of the brood-cases without queen on top over an excluder. This prevents swarming for at least two weeks; and if the conditions change I can make artificial swarms of them just as well.

When the horsemint-flow is over, and all the honey extracted, and I do not wish to increase the number of colonies, I reunite. This is done very easily. I set the first hive with comb, brood, bees, and queen, on a new stand, and the second one on top of it, without any ceremony. I let the bees decide which queen they want. The old bees will fly back to the old stand, and, finding no hive there, will unite with some neighboring colony. If some of them are not accepted it is no loss for me. They would die before winter, and there is nothing more for them to do this year. According to my observation, very few are lost this way, but are usually accepted. Both colonies losing their home, the old bees are not inclined to bite or fight. They unite peaceably, and I do not remember that one of these colonies became queenless. I call this a short cut. Thus I have a great force of bees in the main honey-flow, and few bees when they use up their stores. I let the bees build up to a strong colony, and, if possible, to even *two* strong colonies, and have only one colony all the rest of the year. But I like to have this one colony strong all the time, because a weak colony in the fall will not be stronger in spring, and a weak colony in spring does not grow fast enough in even a good year; while a good colony with a good queen will be a rousing one in a very short time without any fussing, such as spreading the brood, stimulative feeding, etc., and this is another *short cut.*

L. STACHELHAUSEN.

Selma, Texas, Jan. 30, 1892.

LADIES' CONVERSAZIONE.

THE APPEARANCE OF HONEY IN STORE WINDOWS.

MISS WILSON MAKES A GOOD SUGGESTION.

I feel very much aggrieved, and my special grievence is with commission men this time. I wonder why they don't make their honey look a little more attractive. In passing down South Water Street, Chicago, I saw very little, if any, honey that looked very tempting. Perhaps I don't know very much about the circumstances, and it may be they were making the very best display they could with what they had on hand. It is very easy to find fault.

However, I know that one house might have done better, for they had some very nice honey upstairs, while the display in the window was very poor. The room upstairs was dark, and the honey could be seen only by scratching a match, or by the use of a lamp. The reason given for not having a better display downstairs was, that they were expecting a very much nicer lot of honey in a few days, and were waiting for that.

It may be that it was a very inopportune time to visit. Perhaps they were all waiting, expecting something nicer. I hope so, I'm sure. I hope they got it, too, and made their windows look so nice with it that people passing felt they wanted some of that honey right away.

I know that commission men have a great many obstacles to contend with, and not the least of these is a lack of room. With much of the honey seen, the fault was not with the commission men, as no amount of painstaking on their part could have made it look attractive. I only wondered if it was the best they had on hand. If so, the trouble was with the producers, and they were to blame for sending it to market in such shape, and ought not to complain if they did not get a good price for it, as much of it could not have gone any higher than fourth grade by either the Chicago or the Albany grading. To be sure, some sections in some of the cases might have passed for first grade, if they had not been mixed with the others. Some cases shown were mostly nice, white honey, but several sections containing a good deal of pollen had been put in. There were other cases containing sections of beautiful white comb and honey, but a few of the sections were soiled, and a few containing honey-dew had been put in. Now, the commission man was not to blame if he did not get a good price for that honey. Putting the bad in with the good did not bring the bad up to a higher grade, but did bring the good down to a lower grade, and the producer has no right to expect the commission man to assort his honey for him, putting it in the grade where it belongs. He must do that for himself, or be willing to take the lower price his honey will bring on account of the shape in which it is put up.

I must say my fingers fairly ached to have some good honey with which to arrange some of those windows, to make them look attractive. When we are getting our honey ready for market, we take a great deal of pains to pile it up to look nice just for our own gratification, although it is going to stay there only a few days, and its looking nice will make no difference in the price to us. This year we piled the cases all around the sides of the honey-room, glass side facing us, and, when ready to ship, we had a room completely walled with honey; and unless you have tried it you have no idea how nice it looked. Of course, commission men have not the same chance, as they haven't sufficient room; but couldn't they do something toward it? Emma Wilson.

Marengo, Ill.

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SOME NOTES ON WINTERING, ETC.

WISE HINTS FROM MRS. AXTELL.

I wonder how the friends at the Home of the Honey-bees, and also others of our bee-keeping friends, manage to keep their bees in the cellar cool enough this warm December weather. We have 122 colonies in our cellar, 20 x 20 feet, under our house, and no fire above, except at one corner. They are flitting out quite a good deal. We might open one or more windows which we plastered up, expecting a cold winter; but Mr. Axtell thinks if he does open them he will have them to plaster up again in a day or two. They now have one window and a door, and a sub-earth ventilator, all opening outdoors.

I can't help fearing that one reason for so many flitting out is honey-dew; and yet I can't see that there are many more on the floor under such hives than there are under the hives where fed on sugar syrup, as those fed on sugar syrup are marked for the weaker ones, and are put in the center of the cellar. But surely if this great waste of bees goes on all winter as it has thus far, the colonies can't be very strong by spring unless they rear brood in the cellar; and yet, unless there were a good many bees per colony, I don't see how they keep the warmth of the cellar to 42 and even to 46 and 48. At 42 they don't flit much. Last night it was above 50 for the first time. I don't know but it would have been better to put in fewer colonies. We have a large entrance by raising up the front board an inch or so; and this winter and last we have left out the chaff, with the honey-board on top of the bees turned over from what it was in the summer when on top of the surplus.

I look for a great loss of bees this winter, both in our apiary and throughout the West.

There seems to be no royal road to prevent bees from swarming. The devices all cost too much to come into general use, and will be partial failures; but out of this agitation something will assuredly grow. Except for the loss of time to the bees I would rather a few would swarm than to fit swarm-catchers to each hive and have to remove them again in the fall, and no swarms issue.

For my part, I think where the greatest failure in bee-keeping is, is in not getting the colonies strong enough to swarm, and the fault is away back the fall before. We always get a good crop of honey when we get lots of swarms; and if we could only do with our bees as well as we know how, they would pay us better.

Tell the lady who lost so many of her chickens from cholera to keep copperas in their drinking-vessel—about a tablespoonful to a pail of water—and give them plenty of sharp gravel. If they do not have any, pound up broken crockery and feed them. Also burn corn and feed them as charcoal. A few chickens will keep healthy without much care; but when one attempts to raise a large number they need a great deal more care to keep them healthy. An ounce of prevention is better than a pound of cure among poultry. Mrs. L. C. Axtell.

Roseville, Ills., Dec. 19, 1891.

CONVENTION NOTICES.

The 9th semi annual meeting of the Susquehanna Co. bee-keepers will be at Ballard's Hotel, in Brooklyn, on Thursday, May 5, at 10 A.M., at which time the officers for the ensuing year will be elected. All are cordially invited.

H. M. Seeley, Sec., Harford, Pa.

The Cortland Union Bee-keepers' Association will hold its annual meeting in the W. C. T. U rooms, Cortland, on Tues., Feb. 23. All invited. M. H. Fairbanks, Sec., Homer, N. Y.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

FOUL BROOD RAGING IN NEBRASKA; AN EARNEST APPEAL FOR ACTION TO STAY ITS PROGRESS.

I send you by this mail a price list sent to me. Look on pages 30 and 31. You said at the Albany convention you thought foul brood was diminishing. If the operations of some of the bee-keepers of Nebraska are a fair sample of the country, then I beg to differ with you. Here is a price list published here, offering to take bees in exchange for supplies, probably to be used in filling orders. Here is a section of country that I believe it would be hard to find one apiary in that is free from foul brood. I honestly do not believe there is one. Here is a little city where there were rotten combs thrown out in the street last summer. This is a regular hotbed of filth and corruption as far as bees are concerned. I find it impossible, on account of diseased robber-bees of neighboring bee-keepers, to keep my bees entirely free from it, although I can easily keep it in check so that it does not hurt them for honey-gathering. We have the genuine article here—at least, Prof. Cook so pronounced the samples I sent him last June. Can you deny that the Canadian law would be a good thing for these parts, with a man at the head who knows the disease in all its stages, with nerve enough to enforce the law without partiality? I do not believe that all the bee-keepers in Nebraska are dead in the shell. It is about time some one made a move in this matter. Are we all waiting for each other? If so I will start the ball rolling. We have a State law on foul brood, but it is perfectly worthless as it stands. It would do very well if it had only a little intelligent tinkering done to it. Elmer Todd.

York, Neb., Jan. 28.

[We said at Albany, that, so far as we could judge from reports, foul brood was not only diminishing in the United States, but that there was very little of it. Our remarks applied to the whole of the United States, without reference to any particular State; and so far we still insist on the truth of the statement. Foul brood may have gotten a bad start in Nebraska, and bee-keepers of that State should be up and doing at once. See that the State law is amended so as to be effectual, and then follow the example of the Canadians, and wipe out the pest.]

THE IMPROVED HOFFMAN FRAME; OBJECTIONS TO V'ING THE SIDES OF THE END-BAR.

I see that Dr. Miller has ventured to criticise your new Hoffman frame in Gleanings of Jan. 15th. Now, my experience with that frame, in regard to those V-shaped end-bars, is just as he surmises; that the bees will fill the space in the V-shaped end-bar with propolis, so as to make them a nuisance; at least, that is what they will do in Northern New York.

The first Hoffman frames that I used were made that way, and I was obliged to discard them on that account. I then made them with straight edges, when I had no trouble as long as they were kept close together; but I could devise no way to accomplish this except by a follower at the sides; and as my hives did not admit of any contraction, I did not experiment with them.

The Hoffman frame, or any other closed-end frame, must be held firmly together to prevent the bees from propolizing the joints. I do not believe it can be accomplished in any other way. I found that the least separation would start them; and then, if they were not repeatedly scraped, they would soon be so that I could not get all the frames into the hive.

Now just a word as to that tin rabbet that you illustrate in the same issue of GLEANINGS. That is a good thing. That is the only commonsense tin rabbet that I have ever seen; but, hold! it is identical in every way with the one that I devised some three years since, and failed to get you interested enough in to make me a supply for my hives when I was making them all over new. If I could have got you to make them for me then I would now have all of my 120 hives fitted with them. I can not but think that you might save us bee-keepers many dollars if you pursued a different course than you do sometimes. It would certainly save us much trouble and anxiety.

I do not know that I understand how your new top-bar is intended to be at the ends; but I found that it was necessary to have a bee-space at the end of the bar to prevent the end from being fastened to the hive. This also allows the frames to be moved endwise in putting them together, and shoving the bees out of the way. GEO. A. WALRATH.

Norwood, N. Y., Jan 21.

[That is what we want, friend Walrath—testimony for and against the V'ing of the end-bar. We saw its great advantage in so many places in York State, and were assured on every side that propolis did not make any serious trouble, that we did not regard it as an experiment or an unwise move in putting the V on the end-bars. Perhaps your frames were not made right, or were not V'd properly; but there are many friends of the Hoffman frame who have given their testimony on the other side. We should like to hear from Mr. Hoffman himself. Practical bee-keepers would not tolerate at the end of the top-bar any more space than just enough to allow easy handling.]

ONE OF NATURE'S BEE-HIVES IN CALIFORNIA.

I have a remnant from one of nature's bee-hives, brought in from the ranch of Mr. Louis Walker. Mr. W. had been burning mustard-stalks on a side hill near his house. After it had burned off, one of his helpers noticed honey and beeswax running over the ground; and upon investigation it was found to come from what was left of the shell of a pumpkin. Nearly three years ago Mr. W. had pumpkins on this side hill. Many of them were of large size. It appears that a gopher or squirrel had eaten a hole into this pumpkin, ate up the contents, leaving the shell, which dried in good shape for the bees to inhabit. Since that time the mustard had grown up and hidden all from view.

I have taken two immense swarms from badger-holes the past season. These are the few of the many odd places that swarms occupy in this section. M. H. MENDLESON.

Ventura, Cal., Jan. 25.

[The curious places that absconding swarms select as their future abiding-places, and the further fact that they seem to thrive, only proves what a wonderful bee-country California is. The old statement of Quinby or Gallup, that bees will do as well in a nail-keg as in the best constructed hive, seem to be verified in California.]

GOOD WINTERING.

My 110 colonies seem to be in fine condition after our cold snap. Every one was alive a day or two ago. I am wintering outdoors, packed in chaff. Nearly all of their stores are sugar syrup, with a little honey-dew. The bees spotted their hives very little after some three weeks of confinement. I sincerely wish I was as sure of having solved the wintering problem at this date as Ernest and his friends seem to be in the picture, page 60. S. A. UTLEY.

Mt. Washington, Mo., Jan. 28.

NOTES OF TRAVEL

FROM A. I. ROOT.

Jan. 2.—As we approached the line between Oregon and California we saw acres and acres of the most beautiful, thrifty-looking fruit-trees of various kinds, and the moss that has heretofore disfigured them to have mostly, if not quite, given way. What does it mean, such quantities of apples on the ground under the trees, red, yellow, and white, and the trees have been so full there is not room on the ground, without piling them on each other? I judge we have passed thousands of bushels, seemingly in good condition. At the depots, boys are offering most *beautiful* apples at a very low price, so I judge there must be a glut in the market in this locality.

We are on the mountain-tops, and the snow is over the tops of the fences. *Four* locomotives are pulling the train, and gangs of men are shoveling off the snow. In some places it is drifted up to the eaves of the house, and great channels are cut so as to get out and in. Not two hours ago it was as mild as May down in the valleys; but now we see great icicles, as large as a man's body, hanging from the eaves. At half-past 2 P. M. Mt. Shasta first came in sight from our elevation on the mountain-tops. It did not at first seem much different from nor much larger than many other peaks, only that it was, at least the upper part of it, of snowy whiteness. No speck of timber, vegetation, or rock, marred its waxy whiteness. Again, it has for an hour been almost constantly in sight, first on one side of the car and then on the other, as we wind about in our descent toward its foot. This distinguishes a high mountain from other peaks—its perpetual snow, and the fashion of looking just about the same, even while you travel to or from it, for hours. It now occurs to me I have said but little about the mountains as yet. When I first visited friend March's he told me that, right over his front gate, was a beautiful large mountain, to be seen only on a clear day. It seemed to me for several days that, if a mountain was there, I ought to see it; but not until a clear bright day did old Mt. Baker show itself. Then it loomed up in all its icy brightness until one was lost in awe and wonder. Friend M. says he does not believe any human being has ever reached the top, although one or more have lost their lives in the attempt. The trouble is, that it is always covered with ice, and in summer the sun melts caverns in this ice, with only a shell over the top, that often breaks through, precipitating the explorer into crevices from which he may never get out. From the same point of view we see two pretty smaller mountains. These are the Twin Sisters, and they are clear up in British America. All these are between 60 and 70 miles distant. From Portland we see Mt. Hood and Mt. St. Helen, when the day is clear. The former is a rugged peak, and over 11,000 feet high, and last July a party was sent to its summit to burn red lights on the eve of the Fourth. By starting several days ahead they made the ascent, and gave an exhibition of fire-works that could be seen for a hundred miles. St. Helen is not quite 10,000 feet, but it is the most symmetrical mountain, probably, in the world. At first sight it seemed to me that some butter-woman must have taken her paddle, and, by dextrous strokes, fashioned a thing of beauty. Mt. Shasta is one of the highest peaks in the United States, being 14,442 feet. The railroads are very accommodating in running the road almost up to the foot of the mountain. The drifting snow can be plainly seen with the naked eye, and the cloud of snow that is being constantly whirled over the summit must be something like a half or a quarter of a mile long. I took three kodak views of Shasta; but photography can not do a *real mountain* justice. One fails to recognize the distances and enormous height. A mountain two or three miles high might be estimated at less than a quarter as much.

Jan. 4, 1892. Yesterday was an eventful day to me. The deep snows on the mountain threw the train behind, so that I was compelled to travel on Sunday until nearly noon. While speaking of the deep snow I am reminded that a fellow-traveler explained how they clear the track. They have an immense machine, propelled by steam, that might be likened to a huge carpet-sweeper. It takes up the snow while it is yet light, just after it falls, and throws it over by the side of the track. When it has finished the job, the snow lies in a beautiful regular slope, exactly so far from the track, and this slope is at such an angle that it does not often slide or cave in.

In coming in to San Francisco we crossed two ferries. The first took the whole train, entire, without even dividing it; and I was told this ferryboat is the largest one in the world. The whole heavy train, locomotive and all, did not sink the great floating monster even one inch, so far as I could see. The second ferry that landed us in the city, by a system of gates and porters, took all on the train and nobody else. It was a beautiful morning, and the crowds all around me were dressed in their best, but nothing seemed to indicate that any one thought that it was *God's* holy day. I felt uneasy, and my conscience troubled me. As it neared church time I began to fear I should miss the morning service, and it seemed as if I could hardly stand it. I had selected from the various advertisments a temperance hotel, and so I pushed past all the hackmen, telling them I was going to stop at the O—— House. Finally one of them said, "Oh, yes! then I am your man exactly." As I got into his wretched vehicle I thought it strange a temperance institution should send out such a rig and man; and when he began threading the lowest part of the city I became uneasy; but he explained it by saying the direct route to their place was cut up by laying a cable car-track, and that they were temporarily obliged to go quite a piece around, and finally he dropped me before a low-lived whisky-shop. The office of the hotel was in said shop.

"My dear sir, you told me you belonged to the O—— House. How does this come?" and I pointed to the sign over the door.

"Oh! that is all right," he hastened to explain. "This house is owned by the same man that owns the O——. They are exactly alike." I looked at my watch, and saw I had just time to dress for church, if I went right at it and wasted no more time. So I explained I was in a hurry to get to church, and asked for a room. If it hadn't been Sunday I should have been tempted to use the Kodak to give our readers a view of that room. I was careful to hang my clothes on the hooks, while I hastily changed; and if I had dropped any article on the floor, it would have required brisk brushing to get it clean again, although the dirty woman we met at the door assured us the room was all in "nice order." When I asked to be directed to the nearest Congregational church the bloated-faced clerk went for somebody who knew about churches. Finally a policeman was found, and he said he knew of a new church, not far away, that he "rather *guessed*" was the sort I wanted. This policeman, by the way, could hardly talk English so as to be understood. My conscience begins to tell me now, however, that I have found fault enough. After all my fidgeting I was one of the first in that pretty new church. The janitor welcomed me with a handshake, found out where I was from, and introduced me to the different members as they came in, and finally to the good, kindly-looking pastor. Dear reader, if a stranger happens into your church are you *sure* he will get such a welcome? Why, it made me feel at home, and happy at once. How good their faces looked, contrasted with those of the crowd I had met on the ferry! We had an excellent sermon; but the best part of it was near the close, something like this.

"Dear brothers and sisters, I am extremely happy to tell you that my appeal a week ago brought a contribution that paid up every last cent of our debt, so we can start out this new year with our church and every thing about it paid for."

Many of the members spoke broken English, showing they were of different nationalities, and, in fact, the church was in a part of the town where it could not well be otherwise; but notwithstanding this they were clean and pure men and women, "washed in the blood of the Lamb," and made fit for the communion of saints. The contrast between them and the rough, blaspheming, and drinking crowd, was indeed wonderful. I was urged on all sides to stay to Sunday-school, and, in fact, by a perfect drove of children, chattering and prattling around the church door and steps, toward the close of the sermon, until the janitor had to look out several times and motion to them to keep still. I was happy and joyous then; but little did I dream of a new happiness just then right before me. Let us go back a little.

I have before mentioned that Mrs. Root is rather backward and diffident about going out in the world among people. When I started on this trip, our entreaties were all in vain to get her to come. It made her sick to travel, and she could not sleep nights; and, besides, she did not care for new countries and scenery as much as I did. So we reluctantly gave it up. By "we" I mean myself and the children. When I had a relapse of the fever, however, she said she *must* come to me; and, in fact, she could hardly wait until I could direct her how to come. Finally she wired me that she had started on Wednesday, the 30th of December. You may be sure that I did not forget her in my prayers during these four days. During the feverish, sleepless nights I had just passed, my mind was almost constantly drawn toward her. I dreamed of her nights, and while on the streets during the day. If any figure in the least resembled her, it set my heart to beating at once. Some of my younger readers may smile at this. All right. I am glad to have you smile, and I hope the older ones will smile. Yes; and *while* you smile, take that dear hand in yours that has worked for you so faithfully, and tell her that brother Root is not the *only* man who has a heart that beats young again as he sees the dear form or hears her footstep. More than thirty years ago I had a sort of boyish notion that I could not be happy without her. Since then I have seen her work untiringly in molding and fashioning the mind and soul of each little new comer that God sent into our household. I didn't know her thirty years ago, but I do know her know. While I was sick, and thousands of miles away from home, memory went over it all, step by step. As soon as she started I began to pray that she might not be made sick by so much travel. I prayed, and then worried for fear she *might* get sick and have to wire me or Ernest. I kept thinking she might get through on that eventful Sunday; but experienced travelers and railroad men told me it was *impossible* before Monday, and so I was going to all the churches and Sunday-schools, to pass the time until I might look for her.

Let me now go back again to that Fourth Congregational church in San Francisco. Instead of staying at Sunday-school I thought I would just go over to the place we had arranged for our meeting.

"Right there is Hill Street," said the conductor of the street-car; "and if you will walk up on this side you will soon come to No. 20."

I looked at the numbers, and walked along. Sure enough, here is No. 20, and somebody is just closing the door. As I rang the bell a gentleman opened the door, and, with a smile, said:

"And this is *Mr.* Root, I believe."

His next words seemed to stun me. I could not take in his meaning until he repeated them. He said:

"Your wife has just arrived."

"You surely do not mean she is here now, *in this house?*"

"Yes, I do; and she is right in that room."

I saw that the door was ajar. The fever had made me nervous. I pushed open the door, and there she stood—not used up and worn out with travel, but looking unusually well, happy, and just a trifle *saucy*. My prayers were *all* answered—yes, *more* than answered, and, as usual, I was *astonished*.

"O thou of little faith! *wherefore* didst thou doubt?"

The night before she started she had been awake a good deal; but after she really got on the way she slept soundly every night; yes, and she enjoyed the scenery on the way as she never enjoyed any thing before. As she did not leave the Pullman car for three days and four nights, the inmates got pretty well acquainted, and she says she never before met so many good and kind people in her life. I give all this in detail, for I feel sure that others may have the same mistaken notions in regard to travel at the present day. There are many advantages in having your wife with you in traveling. In fact, Mrs. Root has saved expense in many ways. When we came to Los Angeles a hotel-keeper wanted $14.00 for just a room, *without any meals*, for one week! Sue declared we would not stay there a single night; and she very soon found the pretty room, where I am writing now, for only $4.50 per week. It is nicely furnished (in fact, *better* than the one at the hotel), of good size, gas and other conveniences, near the business part of the city, and has a very pretty bay-window reaching out over the street. We can see up street or down, and street-cars are all around us, going for miles in any direction. We can get our meals at a choice of more than fifty restaurants; and there is scarcely an article of food to be had in the world that is not to be found here. There are so many nice dishes served for only five cents each, that, if one wishes to use economy, he can live very cheaply. Our meals usually cost us 30 or 40 cents for *both* of us; and a few days ago we got every thing we wanted, and the bill was only *twenty-five cents* for both. The grocers, bakers, and restaurants have such a great multitude of things, in the most convenient form, that, with the help of a little coal-oil stove, a good meal can be quickly prepared, for only a few cents. Many restaurants make a great specialty of fifteen-cent meals. You get almost any kind of meat or fish, including plenty of potatoes, bread and butter, and a large cup of good coffee, for the 15 cents. Fruits of all kinds known are in wonderful abundance, and are also very cheap. As neither of us carries a trunk, we can leave our baggage at the depot until we look up a furnished room to suit us, both in location and quality. Some of you may think it not much style to travel in this way. We don't care for style very much, and some of the finest people who travel do just this way. In fact, a lady in the Pullman car told me about it, and gave us the address of parties having nice furnished rooms to let.

As my sickness had thrown me back on my appointments we missed many points around San Francisco. In fact, we were obliged to start off Monday so as to be in time at the convention in Los Angeles. I mention this that the friends around San Francisco may not think we passed them by intentionally. Our kind friends, Mr. Bostwick, father and sons, did us very great service in showing us around the city. You should have seen Mrs. Root open her eyes as she saw the beautiful yards with their strange new forms of vegetation. Mr. Frank Bostwick seemed to be a privileged character in Chinatown, and he even went so far as to get us a pass into a Joss house during some great feast or event. We saw the idol, and the temple and worshipers. Their ceremonies and incantations, and the wonderful and varied apparatus, are wonderfully complicated. One would think, from their motions, that they were performing complicated problems and computations in astronomy or mathematics, while the real fact is there is no more sense in it than in the ravings and jargon of a maniac in some asylum. We saw Chinese, both women and children. If the latter could be educated, as we educate every other race, there would be some hope. Abandoning their queue means abandoning their religion, and there is no real hope for them until they do that. There are a few business men who have done that, and in Los Angeles we have a converted Chinese who is a minister of the gospel. I am sure it is all wrong to have so many men and almost *no women*, with any race of people. It seems to me there should be some law against it. I do not mean by this to tread on the toes of any of my bachelor friends.

We made one very interesting excursion to a beautiful park, where we saw seals climbing out of the ocean and clambering up on the rocks. These are not the fur-bearing seals, but are much like them. Their bark sounds like that from a lot of dogs, and one can hear them frolic half a mile away.

Between San Francisco and Los Angeles we did not see much of particular interest until we came to the Mojave (pronounced Mo-*hah*-vay) Desert. In many places vegetation is almost entirely lacking, and only the sandy gravel covers the boundless waste; and at noonday, even in the month of January, the glare and glitter of the sun's rays seemed oppressive. I am told that, in the summer time, it has been as hot as 116° in the shade. I began to look for the bones of animals that had perished, and soon found plenty of them, even in plain sight along the railroad track; and before long not only the bones were visible, but their partially decayed bodies. The air is so dry that no attempt is made to bury them, for they soon dry up, giving off little or no offensive smell.

Not far away is the far-famed Death Valley, where not only horses and cattle, but even human beings, have died in such numbers that skeletons are said to be in plain sight everywhere. In former times a superstition surrounded this place; but now travelers well provided for and well attended go through it safely. The heat is most intense; and as it lies low, there is very little air. This alone would be enough to induce fevers and delirium; but add to that the fact that the water found there is so alkaline, and charged with minerals, that it is almost poisonous, is it any wonder that animals and men become crazed and so insane they never find their way out? On the edges of the Mojave Desert are some very fine bee-ranches; and the great heat during the honey season is thought to assist in giving a large honey-flow when they do not get it in other localities. Mrs. Root was very anxious to see a mirage in the desert. Pretty soon I showed her a lake of water, with the sage brush and bushes reflected in it.

"Oh! but that *is* a lake!" she replied, almost as soon as I pointed it out. I told her to wait until we ran up nearer to it and she would see it disappear; but when we got where the lake should have been, she, "woman-like," was very much inclined to stick to her first position, and to declare that the railway had turned and gone away from it. I mention this to show you how *real* is a mirage.

At San Francisco there was plenty of rain; but when we neared the desert the weather was very dry, and it is still dry here at Los Angeles. We are having, in fact, the most beautiful summer weather here, right in the midst of January. Owing to my sickness I was obliged to give up many points I intended to visit, and, in fact, it was only by pushing ahead as fast as possible that we succeeded in getting here the day of the convention. I think I never attended a convention before where there was a better feeling among all present than at this one on the 6th and 7th of January. In fact, nothing came up during any of the sessions that savored in the least of any sort of discord. Many of the bee-keepers brought their wives, and Mrs. Root soon found herself among the best of friends. As soon as we were up and dressed on our first morning in Los Angeles I was in a great hurry to have Mrs. Root see the strange new vegetation of this semi-tropical land. It was a treat to see her look, and to hear her exclamations of wonder as we passed some of the fine dooryards. The palms and palmettos, perhaps, attracted the most attention. A beautiful park near the First Congregational church furnished no end of wonderful plants and trees. After the convention our good friend Woodberry took us on a drive through the mountain-passes from Glendale to Pasadena, on one route, and back again on another one. Mrs. Root asked me at night whether there were any more places in California so beautiful. A few days after, we visited Ventura, and with a livery team we drove 20 miles up into the Matilija (pronounced Mah-til-e-hah) Canyon. There is a particular spot near the hot springs that affected me so powerfully that I watched her anxiously to see whether it would be the same with her. When I had tried to tell her about it, away back in Ohio, she said she did not believe she cared for natural scenery as I did; but when we came to the point in question I was satisfied. Her expressions of wonder and awe became stronger and stronger, until human language became too weak to express the emotions of the soul. No one can describe a mountain. No picture can do it justice. There are points where the eye and feelings, and all previous judgment and experience, are compelled to confess their utter helplessness. You can't tell whether the road is going down or up, for you have actually seen the rivulet at the roadside so perverse as to run up hill. You at the same time confess you do not know whether the rocky cliff is near at hand or far away; neither do you know whether it is five hundred or a thousand feet high. The great rocks and cliffs appall you; and, to add to the illusion that it must be an enchanted land, the spring that bubbles forth at your feet is *too hot* to drink. We went a mile further up the rugged canyon on foot, and found an apiary of several hundred colonies. Its owner stays there only in the summer time; in fact, he uses it for a summer residence, and moves back into town when the honey season is over.

While friend Wilkin and I walked up to the apiary, the women-folks took a bath in the rude tent right in the bed of the creek. The sun was getting low and the air chilly, but I felt I could not go back until I too had taken a bath. I told them I could be ready to step into the carriage in ten or twelve minutes. The tent looked open, and I feared I should take cold; but when I closed the curtain partially I found it pretty warm, for the hot air poured out of every crack. How delicious and soothing the water seemed! It is so highly charged with chemicals that one can hardly keep his body under—it buoys him up like the salt water of the ocean. After I had got clear under, all but my nose, mouth, and eyes, I enjoyed it so much that I decided they would have to wait in the carriage five or six minutes more. So much clambering about and traveling had made my toes quite dirty. Now, don't be in a hurry to say that I am not neat in my habits, for I did it on purpose. I told Mrs. Root I wanted to test the cleansing properties of this water, without soap, and that she must let my feet stay so till we got to the hot springs. Well, I watched the chemicals at work, for the water is so clear that you can see in it for a foot or two, almost as well as through air. Sure enough, without a bit of rubbing, the dirt faded away right before my eyes, until my toes were as pink and clean as a baby's, and so it was with my whole body. I held my head under the spout, and rubbed it until the scalp was cleaner than any barber's shampoo ever made it. The horses and inmates of the carriage were impatient, and I hustled on my clothes, having been in the tent 18 minutes. I tried to give the proprietor his usual half-dollar; but he said my notice of the spring three years ago had made him many times my debtor; and when I talked to him about greenhouses and incubators with the surplus water, he told me water and the grounds were all at my service, free of cost, whenever I might choose to come and utilize it. I was prepared to hear Mrs. Root say many times that the mountain roads of the canyon were unsafe for even a *good* driver; and I knew, too, that she considered me a poor one, so I let the team "out" gradually; and as they wanted to go home, we went up and down with a rush, now within an inch of the sharp granite rocks on one side, and about as near a sharp precipice on the other, dodging boulders, and ever and anon plunging into the mountain-torrent as we crossed the stream from one side to the other. I do not know when I have enjoyed any thing more than that mountain-drive; and when we got home, just as the last glimpse of the twilight was fading, she whispered that she had more *faith* in her husband than she ever had before, "*as a driver!*" Had we taken the regular stage it would have cost $6.00, and we should have had to stay at the springs over night. With the livery we started after 10, took a couple of friends with us, stayed an hour and a half at the springs, and got back soon after 6 o'clock, and I had the fun of driving a spirited team forty miles. When we were married my wife and I took a steamboat-ride on the Ohio River, for a wedding-tour. Well, during all these thirty years we two have never since had a boat-ride together. When she saw the great ocean, and heard the roar of the waves, she naturally longed for a trip on it. By the way, she came across the Atlantic from "Merrie England" when she was eight years old.

GLEANINGS IN BEE CULTURE
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In the multitude of counselors there is safety.—PR. 11:14.

THE Vermont bee-keepers, in the State convention, report a good honey-yield for the last season. They were quite enthusiastic over it.

THE report of the N. A. B. K. A. is now published in pamphlet form. As usual, it is neatly and well bound. A noticeable feature about the report is the portrait engravings of the officers for 1891 and '92. It can be obtained of Thos. G. Newman & Son, Chicago, for 25c.

THERE seems to be a great deal of disagreement as to the rule that should be laid down for grading honey. But light is surely breaking in; and even should we be obliged to adopt a schedule that might be regarded as quite imperfect, it would manifestly be better than nothing.

IN spite of the cold snap we have been having throughout the country, reports are daily coming in to the effect that bees are wintering well. We feared that there might be some heavy losses in some quarters. Of course, the winter is not yet over; but the fact that bees are doing unusually well at the present time is encouraging.

THE foul-brood inspector for the province of Ontario, Canada, Mr. McEvoy, is doing some effective work. At the present rate, owing to the excellence of their law, and the effectiveness and promptness of their inspector, foul brood in the province will, at this rate, soon be a thing of the past. We hope the State of Nebraska, where the disease is said to be bad, will copy the example of the Canadians.

REPORTS are now in, and show that, of the queens sent to Australia and adjacent islands by mail, only about ten per cent failed to get through alive. A part of this loss, as one or two reports show, was due to an unusual douse of sea-water. G. M. Doolittle has likewise had remarkable success. By the way, he was the first one to send a queen successfully to Australia, and that was away back in 1884. We will shortly publish from him a couple of interesting articles on the subject.

C. P. DADANT says that sections open on three sides are the coming style. They can be so arranged that the tops are entirely closed—that is, the closed sides being on top. This may be some advantage to those bee-keepers who prefer to have their colonies fill only one tier of sections at a time. There is another class who like open-side sections, and this three-way style will accommodate them; and then, once more, these sections can be used like the ordinary, with only tops and bottoms open.

WE have received a number of letters from prominent bee-keepers all over the land, congratulating us on the candor and fairness of our reply to the report of the Ontario Bee-keepers' Association. This we naturally accept as an indorsement of every point we made on the part of the bee-keepers as a whole throughout the United States. Brother Newman, of the *American Bee Journal*, not only indorses our reply, but published it in full in his own journal, and then added some telling points that fully justify his action in the matter of incorporation.

WE have just been favored with a visit from Mr. Frank McNay, of Mauston, Juneau Co., Wis. He is a bee-keeper who manages successfully some 500 colonies. He has not occupied a very conspicuous position in the bee-journals of late, but he is one of the prominent and successful bee-keepers of his State. He runs almost entirely for extracted honey. In talking with him in regard to extractors, he seemed to favor the idea of the new Cowan reversible. We have promised to send him one, and no doubt he will report later in regard to its workings.

AT almost every convention there is more or less discussion in regard to indoor and outdoor wintering. One party will have entire success with one, and another will have failure with the other; and oftentimes some feeling is stirred up needlessly in the discussion. After having examined the matter very closely we have come to the conclusion that locality determines in a very great measure whether bees should be wintered outdoors or indoors. At the late convention at Grand Rapids it was interesting to observe what a difference there was in localities only a few miles apart, as to the coldness of the winter. Where the winters were very severe, cellar wintering seems to prevail. In fact, it was the only method that gave success. Where the winters were moderate the outdoor plan gave altogether the best results. In certain parts of York State, cellar wintering is the only plan that gives satisfactory results. In other parts the outdoor plan is preferred. We shall have to conclude, then, in view of these facts, that, in localities where the winter is so cold that the temperature is, for a good part of the time, down to or below zero, the indoor plan is the preferable one. But where bees have an opportunity for occasional flights, the outdoo plan will probably give the best results.

BARBARITY TO BEES.

ONE of the editorial writers in the New York *Tribune* seems to be greatly exercised over the fact that we have, on one or two occasions, pulled out 10,000 stings from as many bees, the stings being used to supply a large pharmacy concern who prepare a certain powerful and valuable medicine. Mr. W. T. Doty, in the *Orange County Farmer*, in commenting on this, says: "It remains for modern barbarism to devise the refinement of cruelty and nonsense in the use of apis mellifica." Neither of the above writers is attacking *us* any more than the whole medical fraternity of homeopathy. As to the utility of the medicine, that has nothing to do with us. They are both trying to stir up much ado about nothing, to get the people to hold up their hands in holy horror at such "cruelty" and "nonsense." As well, with equal consistency, they might decry the butchering of beef, dehorning of cattle, the gelding of male animals, bobbing of lambs' tails, or the cropping of bulldogs' ears. Gentlemen of the quill, there is a broad field here; you seem to entirely overlook the fact that the bee does not possess the same intricate and delicate nervous system, and therefore is by no means as susceptible to pain. If you had raised your voice against the dehorning of cattle, there might be some consistency about it. The ex-traction of stings was done almost instantaneously, and the bee was utterly crushed out of existence, and possible pain, in another instant. We do not see that we were inconsistent with our professions of the refined sense of humane treatment of our dumb animals of the present day. By the way, the writer for the *Tribune* does not sign his name, but hides in his attack under the editorial "we." If he scores anybody, let him score the junior editor. If a no worse charge is ever entered against him, he will be happy.

ARTIFICIAL (?) HONEY-COMB AT LAST.

On page 103 of our last issue we stated editorially that there were rumors abroad to the effect that another chap was about to place on the market artificial honey-comb filled with glucose; and now samples are out. This morning, as we came into the office, one of the clerks handed us a box and a letter, and added, with a laconic smile, "Here goes your thousand dollars as a reward for artificial honey-comb." As the information struck us from a pecuniary point of view, we were interested at once. Before we tell you about the comb, we present you the letter accompanying the mysterious box. Just read:

KANSAS CITY, Feb. 1, 1892.

A. I. Root.

Dear Sir: I send you this day per express, charges prepaid, sample of the artificial comb. One side is ready for the bees to fill and cap over, and the other side is filled with pure honey and capped over, so you see that the thing can be done, and is done. My idea is not so much to make artificial comb honey, as to supply the bee-keepers with artificial honey-comb so as to enable them to produce just six times more than they are now doing; as some say that it takes 7 lbs. of honey to produce 1 lb. of wax. This making combs is no experiment, but a fact, and they can be produced very cheap. This sample is some of the very first turned out; and by a little more work and pains it can be produced so near like what the bees make that you can not tell them apart. I expect to have my patent-papers in a few days; and if you wish to manufacture the comb under a royalty, I should be glad to figure with you, as I shall devote this month to several concerns—big ones like your own—making arrangements to manufacture under a royalty. This is a great invention, and a long-needed want soon supplied. Now the bee-keepers will rejoice, and the public will rejoice, because they can get all the honey they want; and no doubt I shall receive the reward by return mail, of a New York exchange for $1000, as published by you. I also send you a sample of brood comb. With best wishes I am

Yours truly,

—— T——

Of all the bungling attempts made to imitate artificial honey-comb, this is the worst. A piece of this imitation was inserted in an ordinary pound section. We pushed the comb out (or, rather, cake of wax with holes in it) and weighed it. By a little calculation we found that it would take about 8 ounces of wax to hold a pound of honey (a small fraction of an ounce of *natural* comb will hold a pound of honey); in other words, it would take 15 cents' worth of wax made into this imitation (?) to hold a pound of honey, and the very best comb honey wholesales at from 12 to 15 cents. But this 15 cents' worth of wax does not include the cost of manufacture and of royalties, and for these two items we must add at least 5 cents more. This makes 20 cents' worth of bogus honey-comb to hold a pound of honey; and yet Mr. T—— says it can be made very *cheap*. But, hold a minute! The sides of the cells, instead of being $\frac{1}{280}$ of an inch thick, as in the natural comb, are about $\frac{1}{16}$. We are bee-keeper enough to know that the bees would probably repudiate any such imitation. We have tested very much better samples of so-called artificial comb, but the bees utterly refused to recognize them. While the adjacent combs were filled with honey and brood, the artificial thing was left entirely untouched.

In the mysterious box was another sample of comb that contained honey. One side of the comb, we *suppose*, was intended to represent artificial capping. The side was perfectly flat, without corrugations or indentations, and resembled very closely the side of an unpolished marble slab more or less soiled with smoke and dirt. We showed it to a number of the employes, but they could hardly believe that any one meant that for capped comb honey.

The manufacturer of the adulterated product above is evidently not a very skilled bee-keeper, for he proposes to supply them with an article that "*will enable them to produce just six times more than they are now doing.*" Even if the comb could be made an exact duplicate of the natural article, this statement could not possibly be true.

After making due allowance for the fact that the sample was among the first made, we are not in the least afraid of losing our thousand dollars. Perhaps it would be well to state right here that our offer covered comb honey manufactured by appropriate machinery—that is, making the comb, filling it with glucose, and capping it over. But the candidate, in order to be eligible to the prize, must make his artificial stuff so perfect that it would be mistaken for the genuine article. If the sample sent is the acme of perfection, no doubt, if the senior editor were here, he would increase the offer to $2000; but we presume that, of course, Mr. T—— means the last as a joke.

It may appear to some that we are a little hard on Mr. T——; but we wish it clearly understood how far short his artificial comb comes of the genuine product. The general public would not rejoice. Just imagine the *pater familias* sitting down at the table, taking a bite of the stuff, and, for every ounce of honey that he swallows, spitting out half an ounce of *wax!* Bee-keepers, so far from rejoicing, would only laugh in ridicule at such a crude attempt. Does Mr. T—— suppose that consumers would eat this down as pure comb honey? and does he suppose that they would knowingly eat bogus comb honey?

We can assure our friend that there is no manufacturer of supplies who would for a moment consider the advisability of manufacturing such stuff. We would advise him to place samples of it in the hives, and see how quickly the *bees* will "doctor" them, and that will for ever convince him, if what we have said is not sufficient, that they are exceedingly fastidious as to the kind of honey-comb they have in the hive. They will accept the midrib, or embossed wax sheets, or, as we bee-keepers term it, *foundation*, and build it out into beautiful comb.

Foundation can be shipped, as it were, in the flat; whereas artificial honey-comb, or even natural combs, would have to go at a high rate of freight; and even if the artificial product could be manufactured so as to be acceptable to the bees, bee-keepers could not afford to use it, on account of freight rates. When it is remembered that foundation, in the height of the season, will be drawn out by the bees inside of 24 hours, it will be readily seen that bee-keepers have no need of foundation with full-depth walls, as it were. Another thing, even *if* the artificial comb could be made, it would have to be sold for *what it is*, or else be under the ban of the law. If our friend has not already secured a patent, we would suggest to him the wisdom of consulting two or three bee-keepers before he wastes his money. We would name, for instance, E. M. Hayhurst, of Kansas City.

SPECIAL NOTICES.

HOFFMAN-FRAME END-BARS.

We are having a number of inquiries for the prices of the Hoffman-frame end-bars alone. We furnish the frames complete in the flat at $1.70 per 100; $15.00 per 1000; the end-bars alone for 50c per 100; $4.50 per 1000 pieces; top-bars alone at 60c per 100; $5.00 per 1000.

CABBAGE-PLANTS, FEBRUARY, 1892.

We have a limited stock of extra nice cold-frame cabbage-plants that we are ready to ship now. Variety, Jersey Wakefield. See our seed catalogue for 1892. We can guarantee safe arrival at any post-office in the United States or Canada; but do not throw your plants away if most of the leaves appear yellow and the roots quite dry. Put the plants in a pail of water, which you should take into the field with you; take out one plant at a time; put it into *freshly worked* soil, pack the fine earth closely around the *roots*, not the stalk; draw a handful of soft earth around the plants, over the soil you packed down around the roots. Do not water unless very dry; do not hoe until after a rain or until the plant has commenced to send out new leaves, and you need lose scarcely a single plant out of the average one hundred sent you.

Rates REDUCED.
1892. **Colonies, Nuclei, and Queens.**
Address S. D. McLEAN,
Box 190, Columbia, Tenn.
WRITE For TERMS.

EARLY QUEENS FROM TEXAS.

From my choice 3 or 5 banded stock. My bees are very gentle, good workers, and beautiful. Safe arrival and satisfaction guaranteed. One untested queen, March and April, $1.50; May, $1.00; later, 75c. Orders booked now; money sent when queens are wanted. Send for price list. 4a

J. D. Givens, Lisbon, Tex.
Please mention this paper.

Bee-Hives and Sections

A specialty. Foundation, Smokers, etc., in stock. Send for new list, free.
4tfdb **W. D. SOPER, Jackson, Mich.**
In responding to this advertisement mention GLEANINGS.

Oak Hill Poultry Farm, Troy, Pa.

FINE PLYMOUTH ROCKS.

Orders for eggs at $1.50 per 13 booked now for spring delivery. One-third off on all orders before April 15 that mention this paper.

75 For SALE

Money! Honey! Bees!

75 Colonies of Italian Bees, in ten-frame Root's Simplicity hives. Everything in first-class order. This "Daisy" apiary is situated under the large live oaks, on the banks of the waters of Eagle Lake, in Colorado County, Texas. Plenty of water, fish, and honey. Dovetailed hives on hand for this spring's swarming. 4-5d

J. H. MULLIN & SON.
Oakland, Tex., Jan'y 25.
Mention this paper.

SAVE MONEY.—Send to J. P. H. Brown, Augusta, Georgia, for his price list of supplies. Hives and foundation at wholesale rates. 4tfdb

IMPORTED ITALIAN QUEENS, $3.50, June 1st. Order now.
4tfd W. C. FRAZIER, Atlantic, Iowa.

Bees For Sale Cheap!

118 Colonies in L. frame hives, at Chillicothe, Mo. For particulars address
3tfdb J. J. TUCKER, NEVADA, MO.
1-12db Please mention this paper.

WILL EXCHANGE foundation for wax or cash. Also make wax into foundation, when sent to me, at the lowest price in the world. Send for samples and prices to Jacob Wollersheim, Kaukauna, Wis.

VIOLINS MURRAY & HEISS. CLEVELAND OHIO.
MUSICAL GOODS OF ALL KINDS. **GUITARS** CATALOGUE FREE
MANDOLINS
In responding to this advertisement mention GLEANINGS.

AMERICAN BEE JOURNAL

32 pages—**$1.00** a year—Sample Free.
The oldest, largest and cheapest Weekly bee-paper
THOMAS G. NEWMAN & SON,
CHICAGO, ILL.

EARLY GOLDEN, UNTESTED QUEENS, $1.00. LARGE, FINE, GENTLE, AND BRED for business. Ready about March 20. Dealers send for prices. Fine tested, $1.50 to $2.00. A few breeders, Italian or Golden, $3 to $5. 3tfdb
J. B. CASE, Port Orange, Vol. Co., Fla.
Please mention this paper.

NO. 1 Sections only $3.00 per M. 20-page price list free. J. M. KINZIE, Rochester, Oakland Co., Mich.

WANTED.—To send you my catalogue of Queens, Bees, and Supplies, cheap. 4tfdb
CHAS. H. THIES, Steeleville, Ill.

AUTOMATIC COMB FOUNDATION MILLS.
2-7db —MADE BY—
W. C. PELHAM, Maysville, Kentucky.
Please mention this paper.

SECTIONS.

$2.50 to $3.50 per M. Bee-Hives and Fixtures cheap. **NOVELTY CO.,**
6tfdb **Rock Falls, Illinois.**
In responding to this advertisement mention GLEANINGS.

Western Bee-Keepers' Supply House

Root's Goods can be had at Des Moines Iowa, at **Root's Prices.** The largest supply business in the West. Established 1885 Dovetailed Hives, Sections, Foundation, Extractors, Smokers, Veils, Crates, Feeders, Clover Seeds, etc. Imported Italian Queens. Queens and Bees. Sample copy of our Bee Journal, **"The Western Bee-Keeper,"** and **Latest Catalogue** mailed **Free** to Bee-keepers.
JOSEPH NYSEWANDER, DES MOINES, IOWA
3tfdb
In responding to this advertisement mention GLEANINGS.

Bee-Keepers' ✻ Supplies.

We are prepared to furnish bee-keepers with supplies promptly and at lowest rates. Estimates gladly furnished, and correspondence solicited. Our goods are all first-class in quality and workmanship. *Catalogue sent free.* Reference, First National Bank, Sterling, Ill. Address 1-24db
WM. McCUNE & CO.,
Sterling, Illinois.
In responding to this advertisement mention GLEANINGS.

ALWAYS
ON
TOP

Our strain of **ITALIANS** have reached the top. They are **HUMMERS** when you want bees for honey. Queens bred for business. Make arrangements to order now, to be delivered when wanted.

BEE SUPPLIES AT WHOLESALE AND RETAIL.

For further information about bee-fixtures, send for circular.

PRICES LOW.

JNO. NEBEL & SON,
4tfdb HIGH HILL, MO.

Please mention this paper.

Muth's
Honey - Extractor.

Square Glass Honey-Jars,
Tin Buckets, Bee-hives.
Honey-Sections, &c., &c.
Perfection Cold-Blast Smokers.

APPLY TO
CHAS. F. MUTH & SON, Cincinnati, O.

Send 10-ct. stamp for "Practical Hints to Bee-keepers."
Please mention this paper.

FOR SALE.—APIARY OF 110 COLONIES Italian Bees, in 2-story Simplicity and new Heddon hives, including 3 lots and houses in this town. This is an excellent location for bees, and a fair market for honey. Also 2 tons of extracted honey for sale. R. HEYMAN,
3-4d Brackett, Kinney Co., Texas.

Please mention this paper.

My Catalogue of APIARIAN SUPPLIES for 1892 is free; My Pamphlet, "HOW I PRODUCE COMB HONEY," by Mail, 5 cts.

GEO. E. HILTON, Fremont, Mich.

Please mention GLEANINGS. 2-13db

J. C. SAYLES,

HARTFORD, WIS.,

MANUFACTURES APIARIAN SUPPLIES OF EVERY DESCRIPTION. CATALOGUE FREE TO ALL. SEND YOUR ADDRESS.

3tfdb Please mention this paper.

QUEENS!! DRONES!!

Send for price list of Italian Queens, Drones, Hives, Smokers, Foundation, etc. Finest breeding queen, after March 1, $4.00. Tested, $2.00; 3 for $5.00. Untested, in April, $1.00; 6 for $5.00, or $9.00 per dozen by mail. Safe arrival guaranteed. Orders for Queens booked for 20 days or more, 5 per cent discount. Make money orders payable at Clifton.

3tfdb **COLWICK & COLWICK, NORSE, BOSQUE CO., TEXAS.**

$4 or $5

Will buy ONE HIVE OF ITALIAN BEES AND QUEEN. Simplicity Hive and Frame or Hoffman Closed-End Frame and Hive.

JOHN A. THORNTON,
2-7db Lima, Illinois.

Please mention this paper.

BEES

350 Colonies
1,000,000 Sections,
Foundation, &c.
☞Send for price list.
E. T. FLANAGAN,
BELLEVILLE, ILL.

☞In responding to this advertisement mention GLEANINGS.

TAKE NOTICE!

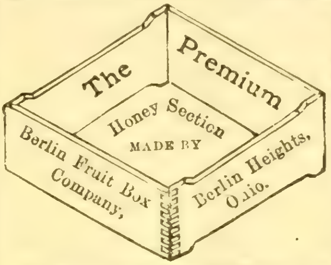
BEFORE placing your orders for SUPPLIES, write for prices on One-Piece Basswood Sections, Bee-Hives, Shipping-Crates, Frames, Foundation, Smokers, etc. PAGE & KEITH,
14tfdb New London, Wis.

Please mention this paper.

TEXAS.

Friends, I have some fine tested queens. I will sell as they come at $1.25, March and April. I do this to get my 4-frame nuclei queenless. Untested, March, April, and May, $1.00 each; six, $5.00; after, 75c each; six, $4.20, or $8.00 per dozen. Discount on larger orders. Contracts made to furnish certain number weekly. The above are the three-banded Italians. I also breed the five-banded strains at above price except tested, of which I will have none till April 15th. A few fine breeders, either race, $5.00. I have changed my postoffice from Farmersville, Texas, to Floyd. Money-order office, Greenville. ***JENNIE ATCHLEY,***
1tfdb ***FLOYD, HUNT CO., TEXAS.***

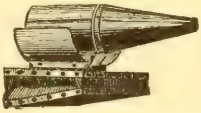
☞In responding to this advertisement mention GLEANINGS.



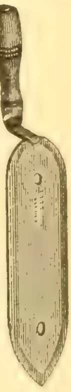
Send for our new price list of Bee supplies and Fruit packages. A liberal discount allowed on winter orders. Address
BERLIN FRUIT BOX CO.,
Berlin Heights
Erie Co.,
Ohio.
1-6db

☞In responding to this advertisement mention GLEANINGS.

BEST ON EARTH



ELEVEN YEARS WITHOUT A PARALLEL, AND THE STANDARD IN EVERY CIVILIZED COUNTRY.



Bingham & Hetherington
Patent Uncapping-Knife,
Standard Size.
Bingham's Patent Smokers,
Six Sizes and Prices.

Doctor Smoker,	3½	in.,	postpaid	...$2.00
Conqueror "	3	"	"	... 1.75
Large "	2½	"	"	... 1.50
Extra (wide shield)	2	"	"	... 1.25
Plain (narrow ")	2	"	"	... 1.00
Little Wonder,	1¾	"	"	... 65
Uncapping Knife.....				... 1.15

Sent promptly on receipt of price. To sell again, send for dozen and half-dozen rates.

Milledgeville, Ill., March 8, 1890.
SIRS:—Smokers received to-day, and count correctly. Am ready for orders. If others feel as I do your trade will boom. Truly, F. A. SNELL.

Vermillion, S. Dak., Feb. 17, 1890.
SIRS:—I consider your smokers the best made for any purpose. I have had 15 years' experience with 300 or 400 swarms of bees, and know whereof I speak. Very truly, R. A. MORGAN.

Sarahsville, Ohio, March 12, 1890.
SIRS:—The smoker I have has done good service since 1883. Yours truly, DANIEL BROTHERS.

Send for descriptive circular and testimonials to
1tfdb **BINGHAM & HETHERINGTON, Abronia, Mich.**

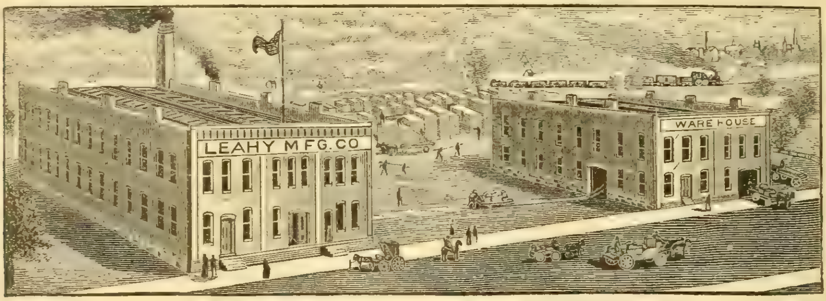
☞In responding to this advertisement mention GLEANINGS.

DOVETAILED HIVES, SIMPLICITY HIVES,

SECTIONS, EXTRACTORS, ETC.
A FULL LINE OF
BEE-KEEPERS' SUPPLIES.
60-PAGE CATALOGUE. 1tfdb

J. M. JENKINS, WETUMPKA, ALABAMA.

☞In responding to this advertisement mention GLEANINGS.



The above is a representation of our factory. **BUILT AND EQUIPPED EXCLUSIVELY FOR THE MANUFACTURE OF APIARIAN SUPPLIES.** We have in connection with our business a **LUMBER YARD, A TIN-SHOP**, and a **PRINTING-OFFICE**. All this enables us to manufacture and sell almost all kinds of goods very **CHEAP**. We have sold over **FOUR CARLOADS** of supplies since November 1, and of those contemplating buying, either in **SMALL** or **LARGE QUANTITIES**, we ask a **TRIAL**. Remember we will not be **UNDERSOLD** or **EXCELLED IN QUALITY**. 24-page catalogue free. Address

LEAHY M'F'G CO., Higginsville, Mo.

☞In responding to this advertisement mention GLEANINGS.

SPRAY YOUR FRUIT TREES AND VINES

Wormy Fruit and Leaf Blight of Apples, Pears, Cherries, Grape and Potato Rot, Plum Curculia prevented by using EXCELSIOR SPRAYING OUTFITS. PERFECT FRUIT ALWAYS SELLS AT GOOD PRICES. Catalogue showing all injurious insects to Fruits mailed free. Large stock of Fruit Trees, Vines, and Berry Plants at Bottom Prices. Address WM. STAHL, Quincy, Ills.

24-10db ☞In responding to this advertisement mention GLEANINGS.

PATENT WIRED FOUNDATION.

The Greatest FOLLY of MODERN BEE-KEEPING is WIRING BROOD-FRAMES.
—Dr. G. L. Tinker.

OUR WIRED BROOD FOUNDATION is BETTER, CHEAPER, and not HALF the trouble to use that it is to WIRE FRAMES. Many may confound the two, but they are ENTIRELY different. **J. VAN DEUSEN & SONS**, Sole Manufacturers, Sprout Brook, Mont. Co., N. Y.

☞In responding to this advertisement mention GLEANINGS. 6-4d

ROOT'S GOODS FOR THE EAST.

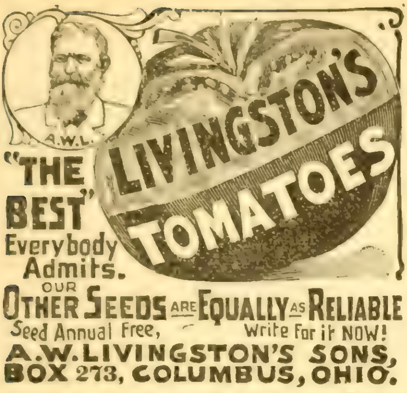
Bee-Keepers of the East should

Bear In Mind that we have established at Syracuse an **Eastern Branch**

where our Bee-keepers' Supplies are kept for sale, and prompt shipment. You can save time and freight by ordering from our Eastern Branch. We have engaged Mr. F. A. Salisbury to take charge of this business, and he will treat you well. He will be pleased to send you a list of goods kept in stock.

Address all orders,

EASTERN BRANCH, F. A. SALISBURY, Agent, Syracuse, N. Y.


A.W.L.
"THE BEST" Everybody Admits.
LIVINGSTON'S TOMATOES

OUR OTHER SEEDS ARE EQUALLY AS RELIABLE

Seed Annual Free, Write For it NOW!

A.W. LIVINGSTON'S SONS,
BOX 273, COLUMBUS, OHIO.

☞In responding to this advertisement mention GLEANINGS.

CANADA BEE-KEEPERS

Will save money by purchasing supplies from T. Phillips & Co., Orillia, Ontario, who manufacture all styles of Hives, Sections, Frames, Foundation, Extractors, and Smokers. Also many new things not handled by other dealers. Send for catalogue and samples of foundation, free.

T. PHILLIPS & CO.,
3-5d ***ORILLIA, ONTARIO, CAN.***

Please mention this paper.

CHICAGO BEE-KEEPERS' SUPPLY CO.,

Are Manufacturers of and Wholesale and Retail Dealers in
BEE-HIVES, HONEY SECTIONS, FOUNDATION,
AND GENERAL SUPPLIES FOR BEE KEEPERS.

Write for circular with special prices. Agents wanted.

Office 68 & 70 So. Canal St., CHICAGO, ILL. | **TOPEKA, KANSAS.**

4tfdb Please mention this paper

LOCATION

Is a big *point*, in supplying goods; ours gives you low freight rates. As we sell low, you should have our circular of supplies. 1-18db

I. J. STRINGHAM, 92 BARCLAY ST., N. Y.

Please mention this paper.

ALSIKE.

Now is the time to sow, and during the next two months. We have a good supply of choice seed at the following prices, which are low for the present condition of the market:

1 lb., postpaid, 34c; 3 lbs. for $1.00.
1 lb. with other goods, 25c; 4 lbs. for $1.00.
1 peck (15 lbs.), $2.80; ½ bushel, $5.40.
1 bushel, $10.50; 2 bushels, $20.00.
Bag included in every case.

A. I. ROOT, Medina, O.

Muth's Honey-Extractor.

Square Glass Honey-Jars,
Tin Buckets, Bee-hives.
Honey-Sections, &c., &c.
Perfection Cold-Blast Smokers.

APPLY TO
CHAS. F. MUTH & SON, Cincinnati, O.

Send 10-ct. stamp for "Practical Hints to Bee-keepers."
Please mention this paper.

I WISH Every reader of this paper to try my superior tested **SEEDS.** I offer the following "STAR COLLECTION" for TWO DIMES (to pay postage, packing, etc.

WATERMELONS.

10 Varieties comprising ALL the largest, earliest, sweetest and best known varieties. A superb collection of the most delicious watermelons in one large package.

MUSK-MELONS.

10 Varieties. A grand assortment of most delicious musk-melon.

VEGETABLE PEACH.

I SENT FOR A "STAR."

This beautiful vegetable was first introduced by me, is exact color, shape, and size of a large orange, fine for mangoes, preserves, excellent fried, and make the most delicious sweet pickles.

GOLDEN HUSK-TOMATO.

This rare tomato is unequalled for pies, preserves, tomato figs, etc., enormously productive, and will keep in the husks all winter. Many consider them fully equal to the strawberry.

MIXED FLOWER SEEDS.

A superb collection of the most beautiful flowers—all the old favorites, and hundreds of new ones—a large package.

☞ 2 Valuable **NOVELTIES** will be sent free to all who order promptly, and who will if pleased show seeds and this offer to a few friends.

The STAR collection is "cheap at $1.00" but, to introduce it will be sent postpaid with my Illustrated Catalog, for only 20 cents if ordered at once. Don't delay. Name this paper, and address,

A. T. COOK, HYDE PARK, N. Y.

☞In responding to this advertisement mention GLEANINGS.

EVERGREENS, 300 Varieties, Natives of Every Land. Lists Free

EVERGREEN NURSERIES, EVERGREEN, WIS.

☞In responding to this advertisement mention GLEANINGS.

QUEENS!! DRONES!!

Send for price list of Italian Queens, Drones, Hives, Smokers, Foundation, etc. Finest breeding queen, after March 1, $4.00. Tested, $2.00; 3 for $5.00. Untested, in April, $1.00; 6 for $5.00, or $9.00 per dozen by mail. Safe arrival guaranteed. Orders for Queens booked for 20 days or more, 5 per cent discount. Make money orders payable at Clifton.

3tfdb COLWICK & COLWICK, NORSE, BOSQUE CO., TEXAS.

☞In responding to this advertisement mention GLEANINGS.

J. C. SAYLES,

HARTFORD, WIS.,

MANUFACTURES APIARIAN SUPPLIES OF EVERY DESCRIPTION. CATALOGUE FREE TO ALL. SEND YOUR ADDRESS.

3tfdb Please mention this paper.

$4 or $5

Will buy ONE HIVE OF ITALIAN BEES AND QUEEN. Simplicity Hive and Frame or Hoffman Closed-End Frame and Hive.

JOHN A. THORNTON,
2-7db Lima, Illinois.

Please mention this paper

POULTRY. Choice Fowls and Eggs for sale at all times. Finely illustrated circular free. GEER BROS., St. Marys, Mo. 21tfdb

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Black and Hybrid Queens For Sale.

Black queens by return mail, 30c; hydrids. 50, as long as I have them. Stamps taken; one-cent preferred. JENNIE ATCHLEY, Floyd, Hunt Co., Texas.

1892 ROOT'S Dovetailed Hive at his prices. Circular free. **1892**
1tfd GEO. W. COOK, Spring Hill, Kan.

$5 FIVE DOLLARS $5

or less, invested in BULBS, and SMALL FRUITS, will give you weeks of pleasure. Roses, Carnations, Lilies, Gladiolii, Tuberoses, Fine French Cannas, Small Fruits, etc.
THEODORE JENNINGS,
5-8d **P. O. Box 69. Port Chester, N. Y.**
Please mention this paper.

Shamrock Pumpkin.

Best for pies. Seed saved from specimens weighing 50 lbs. or over. Flesh 4 inches thick. Can get seed nowhere else. Sure winner at fairs. 25 cents per pkt. **B. Leghorn Eggs** from prize-winning coop at State Fair; 75 cts. per 13; $1 per 26. 5d
C. M. GOODSPEED, P. M., Shamrock, N. Y.
Please mention GLEANINGS.

HURRAH FOR THE GRAY CARNIOLANS!

Bee-keepers, if you want a race of bees that will just pile in the honey, get the gray (only pure) Carniolans. For instance, here is a report of one of our apiaries of 50 colonies for the season of 1891: Honey crop, 7000 lbs. Yield of best colony, 230 lbs. Increase by natural swarming, 15 colonies. For further information write for circular and price list. F. A. LOCKHART & CO., Lake George, N. Y.
Please mention this paper. 5-6d

SUPPLIES. Langstroth Bee-hives, and every thing needed in the bee yard; 30-page catalogue free. **"BUSY BEES,"** a pamphlet telling how to manage them, 10 cents in stamps. *WALTER S. POUDER,* 5-12db
175 E. WALNUT ST., INDIANAPOLIS, IND.
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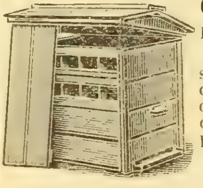
Wholesale and Retail Manufacturer and Dealer in BEE-KEEPERS' SUPPLIES.
ONE-PIECE SECTIONS A SPECIALTY, AS GOOD AS THE BEST.
Send for catalogue. *W. E. SMITH,*
5tfdb *Successor to Smith & Smith,*
KENTON, HARDIN CO., OHIO.
In writing advertisers please mention this paper.

OAK HILL POULTRY FARM, TROY, PA.
FINE PLYMOUTH ROCKS.
Orders for eggs at $1.50 per 13 booked now for spring delivery. One-third off on all orders before April 15 that mention this paper.

SOMETHING NEW!

The Best Made, Handiest, and Cheapest **SECTION SUPER** In the Country.

ALSO THE BEST DOVETAILED HIVES, SECTION-BOXES, COMB FOUNDATION, ETC.
SEND TO THE—
Largest Supply Factory in Massachusetts, for Free Price List that will interest all Bee-Keepers.
Address DUDLEY BOX CO., or F. M. TAINTOR, Manager, Greenfield, Mass.
Please mention this paper



CHAFF HIVES, SINGLE-WALLED HIVES, AND HIVE-PROTECTORS for $1.50

I will ship you a complete sample of the three, with the difficult parts nailed, and all crated. to be shipped as second-class freight. Write for price list.
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Union City, Ind.
Please mention this paper.

HEADQUARTERS FOR ALBINO AND ITALIAN QUEENS AND BEES FOR 1892.

We never had such a large stock of superior queens and bees as we have at present, and shall do our utmost to give satisfaction. Also manufacturers and dealers in Bee-Hives, Sections, Comb Foundation, Novice's Honey-Extractor, and all apiarian supplies. Address **S. VALENTINE,**
5-7d **Hagerstown, Wash. Co., Md.**
Please mention this paper.

500 Colonies of Bees Devoted to Queen-Rearing.
Write for prices on large quantities.
TWO MILLION SNOW-WHITE SECTIONS.
Write for prices on large quantities.
Send for our 24-Page Catalogue of Dovetailed Hives, Smokers, Extractors, Etc.
LEAHY M'F'G CO., Higginsville, Missouri.
Please mention this paper. 5tfdb

Bees For Sale.

COLONIES, NUCLEI, AND QUEENS,
at living rates. Send for circular and price list to
C. C. VAUGHN & CO.,
Columbia, Tenn.

In writing to advertisers please mention this paper. 5-10db

APIARIST WANTED.—I want a man to run a small apiary. Time not spent with bees to be devoted to gardening and general chore work. Will pay $20.00 a month and board, or $35.00 a month without board, to the applicant who will furnish good references as to character, etc. Steady employment the year round will be given the right sort of man. **JAMES HORROCKS,**
5d **Hyde Park, Dutchess Co., N. Y.**

FOR SALE. Seventy-five colonies of bees in Simplicity hives. Price $4 a colony. Address WM. G. GRIFFITHS,
5d Chew, opp. Sharpneck St., Germantown, Pa.

HONEY COLUMN.

CITY MARKETS.

ALBANY. *Honey.* The market presents no new feature. We have received a number of small consignments since our last report; but the demand for comb honey continues very slow. Extracted is in better demand, and stock on the market small. We are entirely out of light, and not much dark on hand. Prices remain unchanged.

Feb. 20. CHAS. MCCULLOCH & CO.,
Albany, N. Y.

KANSAS CITY.—*Honey.*—Light demand; supply ample. White comb, 1-lb., 14@15; dark, 9@12. Extracted, white, 7½; dark, 5@6. *Beeswax*, light supply; demand good, at 23@26.

Feb. 20. CLEMONS, MASON & CO.,
Kansas City, Mo.

SAINT LOUIS. *Honey.* Market tame; little inquiry. Comb 10 to 12. Extracted, cans, 6½@7. Barrels, 4½@5½. *Beeswax*, prime, 26.

Feb. 20. D. G. TUTT GRO. CO.,
St. Louis, Mo.

PORTLAND. *Honey.* White comb honey, 1-lb., 15; 2-lb., 14; light amber, 1-lb., 14; 2-lb., 13; white extracted, 7; light amber, 6½. Stocks light all around. Local product about exhausted, and California practically supplying the market now. *Beeswax*, 25.

Feb. 12. LEVY, SPIEGL & CO.,
Portland, Or.

DETROIT.—*Honey.*—Comb honey is quoted at 12@14; the latter figure is obtainable only for the choicest. Extracted, 7@8. *Beeswax*, in fair demand at 26@27. M. H. HUNT,

Feb. 19. Bell Branch, Mich.

KANSAS CITY.—*Honey.* — Demand poor, with large supply of comb. We quote: Comb, 1-lb., fancy, 14@15; dark, 8@9. Extracted, white, 7; dark, 5@6. *Beeswax*, none on the market, light demand.

Feb. 20. HAMBLIN & BEARSS,
514 Walnut St., Kansas City, Mo.

CHICAGO.—*Honey.*—Our market is more active than it has been of late on comb honey; but prices are no higher. Best lines bring 15@16; dark and off grades, uncertain in price. Extracted selling freely, at 6@7@8, according to kind and quality.

R. A. BURNETT,
Feb. 19. 161 So. Water St., Chicago, Ill.

BOSTON.—*Honey.*—We quote: White comb honey, 1-lb., 14@15; no 2-lb. on hand. Extracted, 6@7. Market well supplied, demand fair.

Feb. 20. BLAKE & RIPLEY,
Boston, Mass.

CINCINNATI. *Honey.*—Trade is quiet. Choice comb honey brings 14@16 in a jobbing way. Extracted, 5@8 on arrival. *Beeswax*, demand good at 23@25 for good to choice yellow on arrival.

CHAS. F. MUTH,
Feb. 23. Cincinnati, Ohio.

FOR SALE.—California 2-lb. section comb honey at 12c per lb. Wis. and Mich. 1-lb. section candied comb honey at 11c per lb. If you want honey of any description, write us. S. T. FISH & CO.,
4-5-6d 189 So. Water St., Chicago, Ill.

Wants or Exchange Department.

WANTED.—A man capable of running an apiary of a hundred colonies for comb honey on shares, in one of the best localities, and has all modern fixtures.
E. L. WESTCOTT, Smith's Basin, Wash. Co. N. Y.

WANTED.—To trade a large lot of Heddon hives, nicely made and good as new; some with combs complete for honey, now or after crop of '92. Write for particulars. Address D. S. HALL,
2tfdb South Cabot, Vt.

WILL exchange lot 50 x 142 feet, well located, in Larned City, for high-grade bicycle, typewriter, Barnes foot-power machinery, or nursery stock.
A. H. DUFF, Larned, Kansas.

WANTED.—To exchange for Italian bees, complete set last edition American Cyclopedia, half Turkey, in perfect condition, 22 volumes, cost $5 a vol. Address CEDAR GROVE FARM, North Madison, Ind.

WANTED.—Position as apiarist. Have had considerable experience in raising queens and producing extracted honey. Have good habits, and am 48 years old. Am willing to work in any part of the U. S. N. F. CASE, Glensdale, Lewis Co., N. Y,

WANTED.—To exchange $35.00 saw-table, Stover's Ideal feed-mill and horse-power combined, and a lot of job type. Want supplies and honey.
2tfdb O. H. HYATT, Shenandoah, Page Co., Ia.

WANTED.—To exchange, red raspberry and blackberry plants for pure Italian queens, or eggs from pure poultry. E. R. MILLER,
4-5d Garden City, Cass Co., Mo.

WANTED.—For 1892, as learners, two young men, brisk, honest, and temperate. Can back instruction by 35 years of active experience in apiary.
4-5-6 S. I. FREEBORN, Richland Centre, Wis.

WANTED.—To exchange for strawberry-plants, raspberry or any small fruit, the Eclipse berry-box machines at $7.00; full description sent on application. Speak quick. A. M. MURRAY, Goshen, Ind.

WANTED.—To exchange apiary of 75 colonies, with every thing needed in the business, for land or other property or offers. Several valuable town lots in five railroad town; no better location for bees in Iowa or Wisconsin. Correspondence invited. 5-6d B. F. LITTLE, Brush Creek, Iowa.

WANTED.—To exchange a special Columbia bicycle, 48 in., Pope M'f'g Co., Mass., with bell and tool-bag; cost $125. Will trade for Italian bees. 5d
H. P. KETTERING, Greensburg, Pa.

WILL exchange P. Rock eggs and fowls, White Holland eggs and toms, Pekin duck and Toulouse geese eggs for bees, improved hives, nursery stock or offers. C. H. WALLACE, Homer, Ill. 5d

WANTED.—To exchange Graham's shorthand text-books for sections or foundation.
5d W. A. CAMPBELL, Sumach, Ga.

WANTED.—To exchange correspondence with parties living in Tenn., Ky., and Mo., who deal in thoroughbred sheep. H. C. DUTY, Walnut Hill. Ark.

WANTED.—A good energetic business man of experience, who can put in $1000 to $2000, to take hold of, and introduce a patent machine for making berry-boxes; a splendid chance. J. F. ADAMS.
5d Van Buren, Ark.

WANTED.—One or more pairs of ferrets. Will exchange choice Pekin ducks or pay cash. 5d
Address CHAS. MCCLAVE, New London, Ohio.

WANTED.—A position in an apiary. South preferred. Ample experience; references good.
5d WILMER W. MCNEIL, Wheelersburg, Ohio.

WANTED.—A Christian young man who has had some experience in care of bees, to work in garden and orchard. State experience, and wages wanted. J. H. EVANS, Lewiston, Idaho. 5-6d

WANTED.—A bee-keeper to work in our apiary. A young man who understands queen-rearing preferred. Address at once, giving references, expectations, etc. P. L. VIALLON M'F'G CO.,
Bayou Goula, La.

WANTED.—To exchange 80 acres of good timber land for bees. Land close to a railroad, to a good sawmill, and close to a good village. State what kind of a hive bees are in. BERT HANDY,
5-6d Richland Center, Wis.

WANTED.—Situation in an apiary, a single young man of four years experience. 4-5d
A. C. FUHRMAN, Pleasant Home, Ohio.

WANTED.—To exchange 60 straight brood-combs in L. frames at 12 cents each for supplies in flat. E. D. BARTON, East Hampton, Mid. Co., Ct.

WANTED.—A man to handle my bees the coming season. FILMORE COLE, Lima, O. 4tfdb

Free. 28-page **RESTRICTOR** book. How to avoid swarms, brace-combs, and losses in winter. How to get bees into sections in one hour; and rear queens in full colonies, etc., same old fixtures. C. W. DAYTON, Clinton, Wis.

24-23db Please mention this paper

EARLY QUEENS,

FROM our branch Apiary in Texas, which is three miles from any other bees, and none but the **best FIVE-BANDED Golden Italian Queens** used to rear Queens and Drones. Our bees are the gentlest, best workers, and most beautiful bees known. Safe arrival and **entire** satisfaction guaranteed. one Warranted Queen, March and April, $1.25; 6 for $6.00. If you want the **best,** send for our circular **at once.** 1-24db

S. F. & I. TREGO, SWEDONA, ILL.

In writing to advertisers please mention this paper.

BEE-HIVES, SECTIONS, ETC.

We make the best goods and sell them cheap.

Our Sections are far the best on the market.

Our Works turn out the most goods of any factory in the world.

Our goods are known as the best throughout the United States and Europe.

Write for free, illustrated catalogue and price list.

G. B. LEWIS CO., WATERTOWN, WIS.

Please mention this paper. 1tfdb

My 654 Colonies of Italians

Are wintering well, and, as usual, I will sell a limited number of them to reduce stock to the required number. Each hive shipped to my customers will contain a full prosperous colony of Italian bees, with a last year's tested queen, on eight Hoffman frames of brood and honey. As my main object in handling bees is honey, we raise all our queens in full colonies from cells built under the swarming impulse, using the choicest and most profitable stock to breed from.

Safe arrival guaranteed in May and first half of June. For terms please address

3-8db **JULIUS HOFFMAN,**
CANAJOHARIE, N. Y.

☞In responding to this advertisement mention GLEANINGS.

Good Queens Cheap.

300 tested Italian queens, raised last season, for sale at $1; $10 per doz. A few hybrids at 25c each. They will be shipped about June 15th to 25th, or later if desired. Have order booked now and send money when you want them. My bees have been ***BRED FOR BUSINESS***, and these are bargains. Nuclei and full colonies at very low rates.

Send 25c for sample by mail of

THE UTILITY BEE-ESCAPE.

Thoroughly tested, practical and cheap. It cleans them out and they stay out. Any one can make it. Get a sample and make your own. 4tfdb

J. A. GREEN, Dayton, Ill.

☞In responding to this advertisement mention GLEANINGS

THE BEE-KEEPERS' REVIEW

In most cases gives, at the head of each article, a neat, half-tone portrait of the author. Beginning with the Mar. No., it will also give a short biographical sketch of each writer (unless too well known to need it) when his first article appears. If you would like to see portraits of about a dozen of the Review's contributors, send ten cents for the last three issues. The Review is $1.00 a year; the book, "Advanced Bee Culture," 50 cents; both for $1.25. New subscribers for 1892 get the Dec., 1891, No. free.

W. Z. HUTCHINSON,
FLINT, MICH.

☞In responding to this advertisement mention GLEANINGS.

RECORD BOOKS

Show that requeening, early in the spring, colonies having *old worn-out* queens, *more than doubles the yield of surplus*, and tends to

PREVENT SWARMING.

I make a specialty of contract orders for queens of the Leather-back strain of Italians. Queens ready to ship 1st to 10th of March.

A. F. BROWN,
HUNTINGTON, PUTNAM CO., FLA.
4-5d Agent Southern Express Co.

☞In responding to this advertisement mention GLEANINGS.

BEE SUPPLIES RETAIL —AND— WHOLESALE.

Everything used in the **Apiary.** Greatest variety and **largest** stock in the West. New catalog, **54** illustrated pages, free to bee-keepers. **E. KRETCHMER, RED OAK, IOWA.**

In writing advertisers please mention this paper.

FOUNDATION AND SECTIONS are my Specialties. No. 1 V-groove Sections at $3.00 per thousand. Special prices to dealers. Send for free price list of every thing needed in the apiary.

2tfdb M. H. HUNT, Bell Branch, Mich.

☞In responding to this advertisement mention GLEANINGS.

FOR SALE. For May delivery, Italian and Hybrid Bees in light shipping-cases, 8 L. frames. Price, for Italians, $4.00; hybrids, $3.00 each, free on board cars here. I guarantee safe delivery.

A. W. GARDNER,
5-8db **Centerville, Mich.**

☞In responding to this advertisement mention GLEANINGS.

LONE STAR APIARY. ITALIAN QUEENS. Untested, but warranted in April, May, June, July, $1 each; per ½ doz. $5; per doz. $8. Tested after May 1, $1.50; per doz., $15.00. Money orders payable at Ft. Worth, Tex. Book orders now. 5-7d

W. A. CARTMELL, Crowley, Tex.

Send for Price List to
R. E. HARBAUGH,
Manuf'r and Dealer in Bee-Keepers' Supplies.
Breeder of Italian and Carniolan Bees and Queens, Light and Dark Colored Ferrets.
25th and Clay Sts., - - - St. Joseph, Mo.

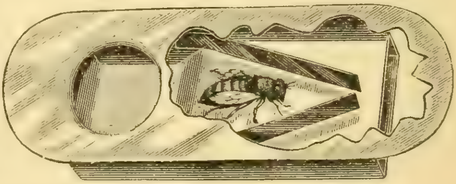
☞In responding to this advertisement mention GLEANINGS.

Porter's Spring Bee-Escape.

We guarantee it to be the best escape known, and far superior to all others. If, on trial of from one to a dozen, you do not find them so, or if they do not prove satisfactory in every way, return them by mail within 90 days after receipt, and we will refund your money.

PRICES:—Each, by mail, postpaid, with full directions, 20c; per dozen, $2.25. Send for circular and testimonials. Supply dealers, send for wholesale prices.

10tfdb ***R. & E. C. PORTER, LEWISTOWN, ILL.***



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GLEANINGS IN BEE CULTURE
A Journal devoted to Bees and Honey and Home Interests.
Illustrated Semi-Monthly
Published by A. I. Root.
$1.00 per Year Medina Ohio

Vol. XX. MARCH 1, 1892. No. 5.

STRAY STRAWS

FROM DR. C. C. MILLER.

The grip has paid its compliments to both editors of the *B. B. J.*

How much does it cost you to raise a pound of honey? That's the question.

Clipping queens, in reply to a query in *A. B. J.*, showed 14 in favor and 9 against.

Carbolic-acid treatment for bee-paralysis is excellent, says J. B. Ramage in *A. B. J.*

Expensive hives are advised against in *B. B. J.* How would the Dovetailed suit?

I'm on the fence on the bounty question, looking for a good place to alight on the other side.

Full sheets of foundation in sections are preferred by 19 out of 23 repliers to queries in *A. B. J.*

Honey-dew is worked into vinegar by W. P. Odendahl (*A. B. J.*), and prime white vinegar it is making.

The windmill at Medina had a dejected look, and the greenhouse seemed very lonely without A. I.

A whisper comes that railroad rates to the convention at Washington next fall will be surprisingly low. Let's go.

Scratches in horses, a correspondent in *The Stockman* says, can be easily cured by bathing with thick sour buttermilk.

"Honey creams" and "Honey Scotch" seem to be two items of confectionery on the British market that are made from genuine honey.

Cost of producing honey was discussed at the Colorado State Convention. Porter said 4c per lb.; Aikin and Rauchfuss 8, and Adams 10½.

E. Bartrum, D. D., in *B. B. J.*, warns against low hives, on account of backache from stooping. Sit down, doctor, sit down, and take it comfortably.

Graybeards were in the majority at the Ohio State Bee-keepers' Convention. Never saw so large a proportion in a gathering of bee-keepers.

The *C. B. J.* thinks the Ontario convention would have been better if there had been more bee-talk in it. Bee-talk is a good thing in a bee convention.

Foundation-mills making 4½ cells to the inch, they told me at Medina, were ordered—nine of them, I think—from Russia. I wonder if Russian "swear words" won't be overtaxed next fall.

The British government makes an appropriation through which county councils provide lectures and technical instruction in bee-keeping. Good for the Britishers!

The *White Mountain Apiarist* suggests that "some bee-keeper living in or near Chicago open a boarding-house for bee-keepers during the World's Fair in 1893."

May is the sunniest month bee-keepers have in England, and yet in that month the sun does not shine half the time it is above the horizon. We might swap them some of our "scorchers."

Editor Newman looks a good deal as if a train of cars had run over him. But the grip hasn't taken all the grit out of him. Just say "adulteration" to him, and you'll find he's not dead yet.

Prof. J. L. Budd recommends sowing orchards with Japan buckwheat about the first of July. Makes larger, cleaner, healthier trees than the usual cultivation, and the fruit more abundant and uniform in size.

An almanac is very handy in a family to keep track of the days of the month; but if you subscribe for the "old reliable" *American Bee Journal* it will keep you straight as to the day of the week. Never misses.

Don't tell what per cent you lost in wintering till your bees are past all danger of spring dwindling. I can winter 100 per cent every winter by taking out of the cellar in January, but I wouldn't have many left in June.

I don't know what those Frenchmen are hinting at on page 116. I know the Dadants have "no swarming to speak of," and I think if I should run for extracted honey I wouldn't have a tithe of the trouble with swarming I do with comb honey.

When a man gets up in a convention and begins, "I am only a learner, but I wanted to ask the best way to do" so and so, you may look out for a plan of his own that he'll fight for as away ahead of any other, and nine times out of ten it's either old or worthless.

The right temperature for cellars, I've always said, each one must find out for himself, as cellars differ so. I don't know of any better way yet; but if they keep on fooling with wet and dry bulb thermometers they may yet give us some rule of universal application.

Have you ordered your supplies for the season yet? You can tell just about as well now as any time how many sections you'll want, unless you wait till the bees are storing, and you may have trouble in getting them in time then. Better be in time, and have enough too. Yes, be sure to have a little *more* than you want, for there's no harm in having something left over for the next season.

Hutchinson has a new picture of me, taken in the enjoyment of good health. His pictures are all right now, and are a very pleasant feature of his journal. As I look at the one of B. Taylor, it seems as if he were just about to make some droll remark, ending up with his inimitable drawl.

Getting pollen out of combs. Here's a good way from Doolittle in *Stockman*. Shake together 2 qts. boiling water and 1 lb. honey. Put in sprinkling-pot and sprinkle combs. Leave in warm room till fermentation throws out most of the pollen. Rinse with warm water, shake off water, and put in hives at night, one comb in each strong colony.

An average crop of honey—what is it? It seems as though some one might find out what has been the average per colony, the country over, for the last ten years. But each one can find out his own average for himself; and I don't believe half the bee-keepers who say "I've had an average crop" have any definite idea of what they are talking about.

Henderson, referring to the editorial remark about "good sleighing," on page 66, wants to know whether sleighing hurts the honey-plants in embryo, or whether the matter is with the comb, or the secretion of wax. All wrong, Bro. H. It's the weight of the snow that holds the clover down, and makes it so dark it can't see to throw up blossoms to be killed right in the middle of winter.

G. E. Tufts, Spring Bluff, Wis., says for several winters he has, with very little loss, wintered bees much as I described in Gleanings. He uses chaff instead of straw, which he thinks better for their 40° below zero; lets the hives drift under out of sight, and remain so all winter. He doesn't take any special pains about moving, and bees don't fight; and if they do mix and equalize, what harm?

Clipping queens, the *B. B. J.* thinks, is a cruel habit, and one which is dying out. Is it any more cruel than many other things we do for our own benefit with creatures under our control? Of the hundreds of queens I have clipped, I never saw one show any sign of suffering, nor did I ever know it to check laying in the least. As to the habit dying out, what proof have you, dear *B. B. J.?*

I wish you could all see that specimen of artificial honey-comb and *comb honey* they have at Medina. The latter, except as to shape, looks a good deal like a doughnut with sugar sifted over it, only not so inviting. The empty comb looks as though some little girls had formed cups of wax over the end of a slate pencil and set them together. But language fails to describe it. You just ought to see it!

I got an oil-stove. Delighted with it!—carried it into any room, heat it up so easily for almost nothing. Nice thing for bee-cellar. I left the oil-stove in a closed bedroom three hours, then went in with lamp. The blaze of the lamp dropped right down. I then took the lamp out into the hall, and the blaze came up bright. I took the lamp back into the room—blaze dropped; took oil-stove back to hardware store. No more oil-stove for me.

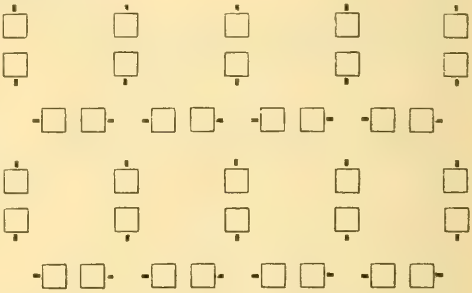
There's much in getting the knack of a thing. I saw Ernest work a Daisy foundation-fastener. I was delighted with its working. Then I tried it. The thing balked. Then it went all right for Ernest every time, but I couldn't make it go. I don't think I'm stupid. I'm only bashful. If he hadn't been watching me I could have made the thing go. I'm going to get one of my own, and learn. I don't propose to be outdone by a young upstart like Ernest.

JULIUS HOFFMAN, AND HIS METHODS IN THE APIARY.

HIS SHORT CUTS, AND HOW HE MAKES BEES PAY.

During the long evenings that have intervened since we described Mr. Hoffman, his home, his cellars, his ideas, and modes of wintering bees, we trust you have grasped the salient points and can apply them to your own practice. True, if you live in a mild climate, or use a very different hive, you may fail to get much benefit from the experience of Mr. H. If so, this article may prove more interesting.

After much study and observation Mr. H. adopts the following arrangement of hives in his apiaries.



As the bees fly from so many directions, there is much less mixing up than when all face the same way. By reference to the engraving in Gleanings for Feb. 1, page 90, you see the covers are flat; hence, by setting the hives in pairs one makes a convenient stand for the smoker, etc., while the other is being operated upon.

The stand upon which each hive rests is simply two pieces of 2 x 4 scantling. To one end of each a board 4 inches wide is nailed. Over the edge of this, and extending over the two sills, a board about five inches wide is fastened. This is the alighting-board; and when the ground is smooth and level, bees can not get under the hive. A glance at the engraving referred to will make all plain.

By way of parenthesis, we told Mr. Hoffman, and state here for the benefit of the reader, that, if all these pieces are well soaked with crude petroleum before being nailed together, they will last more than twice as long as though simply painted or left unprotected. Crude petroleum costs very little; and when its merits as a wood-preserver are generally known it will be largely used.

Mr. Hoffman's hive is 14 inches deep, 16¼ long, and 11½ wide, made of ⅞ pine. A rabbet, about ¼ inch deep and $\frac{5}{16}$ wide, is cut into the long pieces, hence the frames are even with the top, and extend across the hive. The bottom is nailed on, making a strong box not easily racked out of shape. About ¾ of an inch from the upper edge a rim of ⅞ strips is nailed around. This supports the cover, the upper story when extracting, or the surplus box honey-case. Half the thickness of the upper edge of this rim is beveled down to prevent rain from working in.

We said, "Mr. Hoffman, why don't you rabbet the covers, and dispense with this rim, and cut handles into the hives to carry them by?"

He replied, "That would retard in handling and carrying the hives, and would cause loss of time in the busy season."

Mr. H. stated that, for some years, his chief study is to shorten methods and dispense with loose pieces, and reduce the manipulation to a science; i. e., depend upon certain operations to return uniformly the same results.

The openings for the bees are three 1½-inch holes, facing the hive, one in the left end, two in front (see the engraving on page 90).

The lower one in front is only ¼ inch from the bottom-board. Mr. Hoffman has used tin slides, iron slides, and wooden slides, to cover bee-hive entrances, but none of them ever pleased him. At last he solved the problem. A strip about five inches long, 2 inches wide, and ⅜ inch thick, has a small hole in the center. Near one end a 1½-inch hole is bored, and enough of the thickness cut off to nail on a block of wire cloth. This strip is then ready to fasten, by a screw to the hive, wire side down. One way it ventilates; the other it closes the hive or graduates the size of the entrance to suit the operator. The first hive on the left shows an oblong entrance at the bottom; but this hive was made by another, and was taken on a debt.

The followers used at the sides of the frames are half-inch stuff. A strip is nailed to the bottom edge and one at the top. The latter rests upon the rabbets as do the frames. These followers reach to within about ⅝ inch of the bottom, and are ⅜ inch narrow at both sides. A thin saw-kerf is cut into both edges at the sides for five or six inches from the top end. Into each of these a piece of thin rubber packing is fastened extending out ⅜ inch. Now the followers are close-fitting at the sides for four or five inches only.

When colonies are to be drawn to out-apiaries, or *vice versa*, the operation is very rapid. The bottoms are fast; the frames are propolized enough to hold in a spring wagon; the wire cloth ends of the buttons or circular slides are quickly set in position; a piece of sacking, a trifle larger than the hive, is laid on, and the cap pressed down over it. Drive up the wagon and set the hives on. Mr. Hoffman's man can and has hitched the team, and prepared, loaded, and roped, 28 hives in 30 minutes, ready to drive off. Who can equal this? The ventilator in the end of the hive now answers a splendid purpose. The bees have full range, and some cluster in the open space where plenty of air is supplied. The cap and rim on the hive make it impossible to cut off a supply of air between the hives while on the wagon. The hole in the end of the hive also makes it convenient to rear an extra queen or divide the colony early, thus economizing warmth. A division-board for this purpose is made exactly like the followers, except that the rubber strips extend around both sides and the bottom. The bees are thus effectually separated. When a nucleus is cut off from the main colony, the hive is turned partially around, so that the stream of bees coming from the field is divided. A little observation will show whether this is properly accomplished.

The cap (or cover) of the hive is simply a rim two or three inches deep, covered with boards, over which a sheet of iron is placed, the edges of which extend down over, and are tacked to the sides of the cap.

Extracted surplus honey is obtained as follows: One follower is removed, and ten frames occupy the hive. The space between the follower left in and the end of the hive is ½ or ⅝ inch. Over the frames and edge of the follower a sheet of heavy enamel cloth is placed. On this a bottomless hive is put. Frames of comb for surplus are placed in the upper hive, beginning at the end near the follower. The only access the bees have is below and at the sides of the follower. The queen seldom gets into this upper story, and the bees work up very satisfactorily. Every eight or nine days, when honey is coming, these hives are overhauled. The top story is removed. The three first frames are examined. If the hives are well filled with bees, and these frames contain brood, one, two, or three are removed, the bees partially shaken off and replaced with empty combs. All frames containing honey are taken from the upper story, and empty combs substituted. These are put in racks, and go home to be extracted. When eight frames of brood are ready they are set into an empty hive. A strong colony is moved a short distance, and this hive placed so that part of the bees go into it. The operation is repeated throughout the yard. None of the frames in the lower hive are moved, except the first three.

Mr. H. says if they are handled, bees are more apt to swarm. This was new to us.

A strong colony containing a select queen is made queenless. The combs are examined, to be sure that no capped queen-cells are present. In eight or nine days the process described above is repeated, except that the eight frames of brood in empty hive are generally placed on the stands occupied by the new colonies made eight or nine days before. This is done to weaken them, so that a hatching queen shall not be molested. The colonies made on the previous occasion are overhauled, and all queen-cells destroyed. Before the work of the day is over, a lot of cells are cut from the hive of choice brood made queenless at the former visit, and one is set between two combs of each of the queenless hives. If necessary the frames are separated a little, and the cells pressed in a trifle. At the next visit, if the cells appear to have hatched, no examination is then made. About a dozen thin twigs from apple or similar trees are securely tied together. With this the bees are removed from the combs. No wing or brush is used.

If the queen ever gets into the upper (or surplus) story she is shaken down in front of the hive, and the brood treated like the rest.

Mr. Hoffman said, "I wonder how many of the readers of GLEANINGS remember to use grass in the entrances to prevent robbing." We replied, "How many of them use similar entrances, and can successfully employ grass for that purpose?" The process is as follows:

Before a hive is opened, a handful of grass is stuffed loosely into the entrance. This obstructs the bees that belong in the hive and increases the guard; at the same time, the robbers are not able to dart in unchallenged. No attention is paid to the grass. It gradually dries and shrinks, and the bees carry it away.

We said, "Mr. Hoffman, if you hadn't a hive in the world, and could start all over, what size frame would you adopt?" He answered, "I would make no change unless I made the frames one inch shallower. This I would do, if at all, only because 14-inch boards are not easily obtained, and are rather expensive."

Mr. Hoffman's family consist of four girls and two boys. His good sense is demonstrated in that, when the children are young, they are taught only German. As they grow older, English comes as a matter of necessity. The love of music is inborn. The youngest, a girl only two years old, unconsciously hummed a popular air, to our great satisfaction.

Mr. H. says his boys do not "take to bees," hence he will give them practical lessons in organ-building. A dozen are to be manufactured, and the boys are to assist.

Modesty prevents Mr. H. from stating the facts; but, aside from his management of 600 or 800 colonies, he does a good deal of other work, and has a revenue of several hundred a year, exclusive of the income from his bees.

Canajoharie, N. Y. J. H. NELLIS.

You have given many valuable points, friend N., in regard to our modest friend Mr. Hoffman and his methods of work in the apiary. For the last fifteen years he has been working quietly in this way, while the outside world knew little or nothing of him, much less that he had a brood-frame that now seems to be taking the apiarian world by storm.

When we visited Mr. Hoffman we failed to observe that he had his hives arranged in pairs; yet many intelligent bee-keepers are beginning to think it economy to put hives either in pairs or groups. In Mr. Hoffman's method of arranging hives, the entrances all point toward each other; and the bees, as it were, in their flight are focused toward one spot; and that spot is in the center of a group of four hives. We have never tried exactly this arrangement, but something similar to it. At present we rather prefer the plan we advocated on page 922, Dec. 1, and 959, Dec. 15, of having the bees occupy one alleyway for their flight, while the other would be comparatively free for the apiarist.

Mr. Hoffman is a good deal like Dr. Miller—he wants a good substantial cleat with which to pick up his hive. We can readily understand how one who has become thoroughly accustomed to the cleats would not readily be satisfied with handholes made with a wabbling saw. We who have always been accustomed to handholes find no particular inconvenience in lifting hives by them to the wagon, or for any other general handling.

When we visited Mr. Hoffman we were particularly interested in his kind of entrances. This, together with several other things we saw about the place, convinced us that he was pre-eminently a bee-keeper who used "short cuts." These entrance-holes can be very quickly closed; and they have, besides, certain other advantages. If bee-keepers could be content to use hives with tight bottoms, perhaps these entrances would be preferable to a long slot; but there are advantages in long narrow entrances not possessed by 1¼-inch holes. The former, the mice can not get through; and where frames are shallow, like the Langstroth, the long narrow entrance is better, because it gives more alighting room for the bees when coming in laden with honey.

On page 737, Sept. 15th issue, last year's volume, you will remember that two of us prepared and loaded 57 hives in an hour and a half. At the time, we made this statement to prove that bees could be handled on Hoffman frames rapidly, and that hives containing such frames could be quickly loaded on to the wagon for moving. We thought we were doing pretty big things, and so did our friend A. N. Draper, of Upper Alton, Ill. On page 463 of the *American Bee Journal*, Oct. 8, he challenged the statement. But it seems that Mr. Hoffman's man prepared and loaded 28 in 30 minutes alone, and this would be 56 hives in one hour. We two loaded only 57 in an hour and a half. From this it would appear that Mr. Hoffman's man did the work in about two-thirds the time that *two* of us did. According to the way in which we worked, one of us would have loaded 57 hives in three hours; but Mr. Hoffman's man would have loaded 56 hives in one hour. This will be a poser for friend Draper. If our feat seemed difficult of accomplishment, what must he say of the apiarist of Canajoharie? After all, the credit is not due to him, but to his employer, Mr. Julius Hoffman. And this shows quite conclusively how Mr. H., with his appliances, manages his apiaries with the minimum of labor and expense, and how he would make money when others would lose.

There are two other points to which we should call attention: That handling frames or disturbing the brood-nest is liable to increase the desire for swarming. If any of our readers have made observations on this point we should be glad to hear from them.

Another point is the use of grass in stopping robbing. Dr. Miller has used the same scheme, especially when working with out-apiaries. The entrances may be plugged tightly with grass, and, in a couple of hours after the robbers have given up and quit their nonsense, the grass will have wilted, and opened the entrances automatically, although the apiarist may be miles away.]

THE ALBANY GRADING.

MR. ELWOOD EXPLAINS IT.

In a recent issue of Gleanings the editor calls attention to the fact that, in the markings for the Italian bee, the numbers do not foot up an even hundred. As I remember, the missing ten should be added to wintering, making it twenty-five, and the whole scale substantially the same as Mr. Knickerbocker put it in his essay. The only change made was five taken from color and added to honey-gathering and comb-building qualities. In future it may be thought best to divide the last-mentioned points and give each one a separate marking. Bee-keepers do not object to handsome bees, but they do object to having this accomplished by in-and-in breeding to the exclusion of the far more important qualities. The original report was hurriedly corrected in pencil; and although Mr. Hutchinson prides himself on being skillful in deciphering hieroglyphics, it is perhaps not strange that he failed on this. Probably for the same reason the report on grading honey was not given correctly. The report says, "Honey shall be graded in two grades," and then proceeds to name four regular grades. It should read, "White honey shall be graded in two grades." The description of the third grade is also defective. The complete report should read as follows:

White honey shall be graded in two grades:

The first to be known in the trade as "fancy," or "fancy white," and to be marked "A." It shall be composed of well-filled sections of light-colored honeys. One face of each section shall be perfect in appearance, fully sealed, except the line of cells touching the wood. The other side of the section shall either be perfect in color and sealing, or nearly so.

The second grade shall be known in the trade as "fair to good white," and be marked "C," and shall be packed to meet the requirements of those desiring a good honey, but who care little for outside appearance. It shall be composed of honey thrown out of the first grade, irregular and travel-stained combs, sections not perfectly filled, but yet having but little unsealed honey.

The third grade shall be known as "mixed honey," and shall be composed of white honey chiefly, mixed with inferior honey, including buckwheat and fall flowers, and shall be marked "M." We advise that combs so badly stained as to have the color of saffron be thrown into this grade.

Buckwheat honey shall be packed by itself and be marked "B."

Those bee-keepers sending to market boxes known as "pieces" shall put upon them a private mark of their own. This should also apply to honey-dew, and any other kind not falling into regular grades.

This report was made with the knowledge that bee-keepers usually stencil their honey with their full address, thus giving the State and locality in which the honey is produced, which is important in judging of quality. While the first and second grades are composed of light-colored honeys it is, of course, expected that the lightest colored will go into the first grade, and the darkest of the light honeys into the second. Great care should be taken that mixed honeys, or honeys of too dark a shade, be not put into the "C" grade. It is impossible to express on paper the slight variation in shade of honey that will often throw it from one grade to another. Grading honey is one of the most difficult tasks the bee-keeper has to do; and no one with much experience is looking for short, explicit rules that will cover all cases. It is something that can not be done by lamplight, and very seldom, indeed, by proxy.

The committee thought best to use the letter "A" on first grade. "A" has been used for many years (fifteen) for the first grade; and as it is the first letter of the alphabet, nothing can go ahead of it. Should some ambitious individual use it double, it would express less rather than more. For the second grade, "C," the old mark for clover or white honey, was chosen rather than "B," which has always been the mark for buckwheat honey. To have changed these letters would have caused confusion; and, besides, the lettering would have been in nowise descriptive. Then, again, if the letters had been taken in regular alphabetical order (A, B, C, D), it would imply that the quality followed in the same order, making it little less objectionable than the numerals 1, 2, 3, 4. It would also place buckwheat honey third in quality, whereas it stands first in quality with many consumers, and in some markets it is also first in demand. By the system of independent lettering, each grade stands on its own merit for quality. Any attempt to grade or pack buckwheat honey with other dark honeys, as suggested by Mr. Frazier, in the last issue of GLEANINGS, will prove a complete failure. Those who buy buckwheat honey buy it because they like its flavor. They want nothing else, and it should be marked so that it may be known. Mr. Frazier makes nine qualities, which is double the number necessary, and twice as many as dealers will accept. His classification, however, is a wonderful improvement over the Chicago grading, which is worthless. It is worse than worthless, for it supplants better methods and practices. It was not severely criticised at Albany, for it was felt to be a piece of bungling work that, the less said about, the better. The recent attempt to revive many of its objectionable features calls for a few remarks.

It will not do to throw out a section from the "fancy" grade because it is not firmly attached to the bottom. Some of the finest honey ever marketed is of that kind, and all the trouble it causes is in packing, when it should be turned upside down. Then, again, nearly all sections show travel or propolis stains, even after careful scraping, and it will not do to throw these out for the very slight stains remaining. Not only are such thrown out of the first grade, but out of the second as well. It will not do at all to grade honey by the color of the box, and say nothing about the color of the honey. By the modern system of marketing, in which orders are given to canvassing grocers, and goods delivered, honey-boxes are not usually seen by the consumer, and the honey itself not seen until upon the table. This fact was taken into consideration when the Albany committee decided that a box of honey, very slightly imperfect on one side, might be graded as "fancy." The best side always goes up on the table, when in appearance and other qualities it is strictly "fancy." In the first Chicago grade all cells are to be sealed, including the line of cells touching the wood. Now, a section is just as fancy—just as good in every way—if these cells are not sealed. The honey also carries fully as well, for any straining of the box will crack the sealing of this line of cells, and cause it to leak badly. When these cells are unsealed the bees usually remove the honey before the section is removed from the hive. In their third grade go such sections as are less than three-fourths filled with honey, and these may be partly or wholly unsealed at that. Such sections ought to be left at home, as the general marketing of these can not fail to injure the market. When they are shipped, let the producer place on them his private mark, and never *forget* to add his full name and residence. The same may be said of sections containing chunks of bee-bread. The man who buys one of these last will not want any more honey for some time.

Three grades of each kind of honey is more than the market will bear. White clover, alsike, alfalfa, basswood, poplar, sourwood, locust, blue thistle, white sage, blue sage, sumac, buckwheat, goldenrod, and a dozen other kinds multiplied by three, would strike terror to the heart of the dealer. Had Mr. Baldridge's complete draft been adopted it would have reduced the qualities to ten or twelve, and, in justice to Mr. B., ought to have been done, so as to have made sense of the remainder.

Some of our committee rather favored another grade of white honey; but the honey-merchants present vigorously protested against having so many grades, as it would only bring confusion. It was thought by the majority that light honey would bring more in two grades. If in three grades the first (a small quantity) would bring more; but the second (a much larger quantity) would bring less, as it would not be as nice. Even if so small a quantity were taken from it as to make no perceptible difference in quality, the knowledge that this was not the best would weaken prices. The third (or mixed) grade will take all honey not light enough to go into the second grade, except buckwheat, which, as before stated, must be packed by itself.

I notice that our secretary (W. Z. H.) says in the report, that "these rules were not the sentiment of the majority of the members of the convention." I had supposed the duties of the secretary were clerical, and that any opinions he wished to have appear in the printed report would first have to be pronounced before the convention. It is hardly fair that a statement of this kind should appear in our annual report, as the facts in the case will not warrant the assertion. A large part of the honey sent to eastern markets, particularly to New York, is graded by substantially these same rules, with somewhat different letterings, and they are the result of many years' experience in marketing honey. The uniform satisfaction given by this system of grading does not make it perfect, but there is no doubt that, after discussion in a full convention, made up so largely of eastern men, the report would have been adopted with no radical change.

Starkville, N. Y. P. H. ELWOOD.

To be continued.

[Perhaps we shall have to own up that we here at the Home of the Honey-bees took the original drafts of the committee on grading the Italian bee, and sent copies of the same to the editors of the *Bee-keepers' Review* and *American Bee Journal*, and therefore we shall have to shoulder the inaccuracies of the report on grading and accept the correction.

Mr. Elwood's article throws much light upon the Albany grading; and as he explains it we have but little fault to find with it. Unlike some of the other gradings, it is not based upon theory, but upon fifteen years' experience, of the largest bee-keepers in the world, together with that of the largest honey-merchants. The fact that it is accepted in the East, and been practically in vogue all these fifteen years, is much in its favor. We feel compelled to acknowledge that any system of grading that calls for a large variety of classes will fail of adoption. It must be something simple and practical.

Buckwheat honey is not called an inferior article in the East. As we have before stated, we reiterate again—there are thousands of consumers who consider this the *only* nice honey. Our travels and sojourns in the East among the consumers and bee-keepers, and our conversations with boarders at hotels, prove this beyond question. It is a mistake to place other dark honeys along with buckwheat; and any attempt to do this will be rejected by bee-keepers, honey-merchants, and consumers in the East.

In the West there are several fine grades of honey, such as heart's-ease and fireweed (or epilobium) that have a cream color of capping, but are regarded as first-class honey. All fine honeys of the East are either white or the color of buckwheat; and considering these two differences in localities, it begins to seem to us now that it would be impossible to adopt one system of grading that would be accepted by the bee-keepers of both East and West, and therefore *two* systems will be the natural result. There is nothing impracticable in this; for when bee-keepers wish to send honey to a distant market, they can say that their honey is graded either by the Eastern or Western schedule and the buyer can consult either schedule, to see what he is buying, or about to buy, and be governed accordingly. We know that railroads make a distinction as to locality, and they have therefore what they call their Eastern and Western classification in freight, and why not two schedules for honey?

As this is to be a sort of symposium on grading we have thought best to reprint the schedule of grading recommended by J. A. Green, as it is referred to several times by Dr. Miller in the article immediately following.]

EXTRA SELECT.

Light-colored honey, of good flavor; combs straight, well built out, of even thickness, and nearly uniform weight, attached to the section on all sides; all cells sealed, with white cappings, and with both comb and sections unsoiled by travel-stain or otherwise.

"A" GRADE.

Light-colored honey, of good flavor; combs straight and well built out, with cappings white, or but slightly amber-colored; one face of each comb perfect in appearance, fully sealed, except the line of cells touching the wood. The other side shall be perfect in color and sealing, or nearly so, and section not badly soiled.

"C" GRADE.

Honey of good quality. In this grade shall be placed all irregular combs, or those containing pollen, and all in which the capping is dark or considerably soiled. Sections must be nearly filled, with few or no unsealed cells.

"M" GRADE.

In this grade shall be placed all honey of inferior quality, all combs containing much pollen, or badly travel-stained, or otherwise objectionable. Sections must be at least three-fourths full, with one side well sealed.

GRADING HONEY.

DR. MILLER DISCUSSES THE DIFFERENT GRADES.

When the subject of grading honey came up at Chicago I felt we had struck a topic of live interest; and although the system there adopted did not seem to me one likely to go into general use, still it was a start; and, a start once made, the matter was not likely to rest until it grew into what was good and practicable, if such a conclusion is possible; for it can not well be denied that there are real difficulties to overcome on account of the great diversity in honey in different parts of the country. In proof of the difficulty of arriving at any system that shall be satisfactory to all, it is only necessary to recall the action at Chicago; and, indeed, I think, from the report, that much the same thing was repeated at Albany. At Chicago an intelligent and honest committee utterly failed to come to any satisfactory agreement, although continued from session to session. Then in general session an agreement was reached only by each one being willing to yield much, with the feeling that any thing was better than not to make a start at all.

I suspect that any thing like a satisfactory system will be reached, if reached at all, only by a great deal of discussion; and it will be well that such discussion go on now without waiting for any convention to meet next fall or winter. So far, I think good has been done. We have now the Chicago system, the Albany system, and that of J. A. Green, each one improving, at least in some respects, on what had gone before.

Now, I suppose you will be asking me what my system is. Frankly, I haven't any. Dr. Mason reported at Chicago that no two of the committee could agree. I believe that it was admitted that one member of the committee had no difficulty in coming to an agreement but for the stubbornness of the other five. Well, I'm worse than the Chicago committee, for I can't even agree with myself. But it may do some good to examine somewhat the merits and demerits of the two later systems. You know it is a good deal easier to talk about what others have done than to say what ought to be done yourself.

Flavor is not mentioned in the Albany grading; but Mr. Green requires good flavor in his two highest grades. I suppose, although I do not know, that the same is required in the third (or C) grade, as it says, "Honey of good quality." Indeed, if there is any difference Mr. Green's C grade must be better in quality than the previous grades, for we can hardly have "good quality" without "good flavor," although we might have good flavor without good quality if the honey were too thin.

Friend Green says, "It is undesirable* that the selling value of comb honey depends more upon its appearance than any other one quality." Entirely right. Almost any bee-keeper, for his own eating, would prefer a honey of best flavor, and rich in texture, even if the cappings were quite dark, to one of poorer flavor. Years ago I undertook the education of a grocer in Chicago. He said his customers wanted very white combs. I told him that honey was better to be left in the hives till the bees had thoroughly ripened it, and the darker shade of the comb was only a proof that the honey inside was better. I continued for some time to leave the combs on the hive, to be more fully ripened, determined that his customers should have what I *knew* was the best, and he continued to buy of somebody else. I have concluded that education in that line is a matter of very slow growth, and that it must be left pretty much to itself.

Sometimes we must deal with what *is*, rather than with what *ought to be*. However undesirable it may be "that the selling value of comb honey depend more upon its appearance than upon any other quality," I think the simple fact remains that it *does* do that very thing; and in any attempt to establish a system of grading, it will not do to leave out of consideration the demands of customers. The day may come when appearance will be of less consequence than flavor; and when it does come, grading must be changed to meet changed conditions. At present the consumer does not ask any thing further than as to the *appearance* of the article; and, whether we like it or not, we must pay some attention to his demands.

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*Mr. Green wrote *indisputable*, "undesirable" being a typographical error. See last issue. Ed.

It is possible, however, that the graders at Albany did not altogether ignore the matter of flavor, but considered that there was no honey of light color deficient in flavor. There is a difference in the flavor of white honeys; but, if I am not mistaken, any of it is good enough in flavor to be taken by the consumer at the highest price, providing it is all right in looks.

Straight combs are demanded in friend Green's two best grades, but nothing was said about straight combs at Albany. The less cumbersome the wording in describing a grade the better, providing nothing essential is omitted; and it is a question whether one section could be found in a thousand which would be crooked enough to throw it out of a grade, if it were all right in other respects. Possibly there may be something in this that I either do not now think of or do not know about; but just as it appears to me at present, it seems hardly necessary to demand straight combs. Green's A grade demands white cappings; but that is evidently meant for one side, as afterward one side is allowed to be "nearly perfect in color." The Albany A grade says nothing about white cappings; but as perfect color is demanded, I suppose it amounts to the same.

There are other points worthy of notice, but I must defer mention till next issue.

Marengo, Ill. C. C. MILLER.

[If we understand Dr. Miller correctly, he rather leans toward the Albany grading, and will probably do so more yet after reading Mr. Elwood's article.]

GRADING COMB HONEY.

THE CHICAGO GRADING AND MISS WILSON'S CRITICISM CRITICISED.

In GLEANINGS for Dec. 15, 1891, Miss Emma Wilson writes about some of the work done at the Chicago convention, and attempts to give from memory the instructions for grading comb honey, as adopted by the convention, and then criticises the same. That any one should attempt to give such instructions from memory, was and is a great surprise to me, and especially when the apparent purpose was for passing criticisms upon them. As might have been expected, the instructions as adopted by the convention are not, in some important respects, the instructions as given from memory by Miss Wilson; and as they have become public property, and are to be "picked to pieces," it seems to me that GLEANINGS ought to find room to give them precisely as adopted, so that all of its readers may see for themselves what they are. I expected GLEANINGS would have done so before this, or I should have made this request some time ago.

Miss Wilson says that the instructions for both the first grade and second grade require that each section shall be "perfectly filled;" whereas the words "well filled" are used instead in the rules adopted, which makes quite a difference. She says each section in the second grade may have as many as three cells of pollen, whereas the word "pollen" or "bee-bread" does not appear in any of the instructions adopted. This was one of the essentials that should have been attended to, as well as both combs and wood being *slightly* soiled by travel-stain, propolis, or otherwise. Personally I should not object to these modifications being incorporated in the rules for the second grade; still, I don't believe it is for the best that any bee-keeper be encouraged to produce comb honey with more or less pollen in it, nor to have the comb and wood soiled even slightly by travel-stain or otherwise.

Miss Wilson says there were quite a number at the convention who thought there would in future be very little first-grade honey put upon the market under the instructions. On the contrary, I think there will be enough to supply the demand at a fancy price, and a great deal more than may be anticipated. And why? Because it will in future pay to produce first-grade comb honey. There are always plenty who are able to supply the demand for any commodity whenever it pays to do so.

The *color* of comb honey seems to give some bee-keepers a deal of trouble. They seem to think that only white honey should be first-class, whereas color should not, aside from being uniform, be considered at all. And why? Because some consumers prefer dark honey to white, without regard to price, when of the same grade. Now, this is not guesswork by any means. Being almost constantly in the honey-trade, and dealing directly with consumers, I know that what I have stated is true. The color of honey may be designated as white, dark, and medium. I see no reason why there should be more colors designated. This being the case, there will be only three colors to mention, or to be kept in view, for each grade.

Miss Wilson says: "Suppose you receive an order for a lot of first-class honey, and you send buckwheat honey, do you suppose the party will be satisfied?" If this party orders first-grade dark honey, he or she will, in that case, have no just cause for complaint. No one would or should ship buckwheat or any other dark honey to a party who orders white honey. Really, I see no trouble in the direction indicated. M. M. BALDRIDGE.

St. Charles, Ill., Feb. 4.

[We should have published the Chicago grading before, but overlooked it, and therefore take pleasure in giving it to our readers now, more particularly as some of its features have been criticised by Mr. Elwood.

FIRST GRADE.

All sections to be well filled; combs straight, of even thickness, and firmly attached to all four sides; both wood and comb to be unsoiled by travel-stain or otherwise; all the cells sealed, and the honey of uniform color.

SECOND GRADE.

All sections well filled, but with combs uneven or crooked, detached at the bottom, or with but few cells unsealed; both wood and comb unsoiled by travel-stain, or otherwise, and the honey of uniform color.

THIRD GRADE.

Sections with wood or comb or both, travel-stained or otherwise much soiled, and such as are less than three-fourths filled with honey, whether sealed or unsealed; and crates containing two or more colors.

The Society voted to adopt the foregoing rules as a whole, and to request the Secretary to present them to the North American Bee-keepers' Association, at its next meeting, at Albany, for consideration, revision, and adoption.

Following the above rules, Mr. Baldridge had a note, which read as follows:

Note. The color of the honey to be known as light, medium, and dark; the crates to be unsoiled; but if otherwise, the honey in such crates to be classed in the next grade below the one indicated in the instructions.

FOURTH GRADE.

All crates filled with honey not described in any of the foregoing grades.

While the Chicago committee agreed to disagree, it should be observed that the committee on grading at Albany agreed to a unit, and that the schedule, when presented in convention, was adopted as a whole. In all these discussions we must not forget the bearing of locality, and its relation to the markets.]

A. E. MANUM AND HIS NEIGHBOR.

HOW HE SUCCEEDED IN MANAGING FIVE APIARIES ALONE.

A ring of the bell brings Mrs. M. to the door.

"Good-morning, Mrs. Manum; is Mr. M. at home?"

"Yes, sir. Will you walk in, Mr. McGee?"

"Hello, Manum! what is the matter with you? Have you got the blues, or are you studying up some new invention? You seem to be in such deep meditation that I know there is a cause for it. I am sure something useful to bee-keepers or to farmers will come out of this deep study. I hope I am not intruding."

MANUM MEDITATING.

"Oh! no, Charles—no intrusion whatever. I am only too glad to see you. And right now I ought to give you a Scotch blessing for not being more neighborly. But I suppose you are very busy, like the rest of us, preparing for another season's campaign."

"Yes, Manum, I am doing a little in that line, though I am not driving business as yet."

"Well, neither am I, as I do not expect the coming season to be a very good one for honey, owing to the fact that it is the off year for basswood; and the open winter we are having I fear will injure the clovers. However, I am putting up 20,000 sections so as to be ready to catch whatever may come."

"What effect do you think the ice-storm we have just had will have on the honey crop?"

"Well, Charles, I fear the terrible sleet, with which the trees are still loaded, will cause much damage to the fruit-buds as well as raspberries and other shrubs, which I fear will lessen the bloom another year at least a half; hence we can expect but very little if any surplus next season. But notwithstanding the outlook is unfavorable, I propose to be ready to take a fair crop of honey."

"You finally did not attend the North American convention at Albany, as you intended, did you, Manum?"

"No, Charles; owing to sickness and company I was obliged to remain at home, much to my regret, and I think it a shame that more of our Vermont bee-keepers did not attend. Really, I thought a goodly number would be in attendance. But we must all make up our minds to meet in Washington next fall."

"Now, Manum, what were you meditating upon when I came in?"

"Well, Charles, I will tell you. Within the last two months I have received a number of letters from bee-keepers, asking me to give them my methods, in detail, of management the past season, without help; and not a few have requested that I give it in book form; therefore, as you came in I was thinking the matter over, whether it would be advisable for me to do so or not. There are so many bee-books before the public already that I rather hesitate about making the attempt. And, again, I can not write out my method of management for the season through to each separate individual who asks for it, as I have something else to do besides writing; and were I to do so it would take all my time."

"Well, Manum, what are your conclusions regarding the book, and why don't you give your methods in GLEANINGS?"

"There it is, Charles—that is just what I was meditating upon. On the one hand, were I to attempt to give my methods in GLEANINGS I fear the editor would cut it down so much that it would spoil the whole thing—or, at least, its usefulness—for the reason that there are so *many* little things that are worthy of mention, and, in fact, so very *necessary* to the successful management of out-apiaries—without help—that, to leave them out, would spoil all; and to publish *all* as I should wish to give it, I fear, would discourage if not disgust the editor. And, again, were I to give my methods in book form (in cheap pamphlet form) I fear the expense would be much more than the receipts; and, furthermore, I am hardly prepared to publish a book, as I am conducting some experiments which will require another season to develop; and if these experiments prove satisfactory, as I hope they will, I shall want to incorporate them in whatever I might give to the public. Hence I have concluded to defer the book business until another year at least, and in the mean time give a synopsis of my method, in GLEANINGS."

"I have wanted for a long time to ask you, Manum, how you succeeded last season in managing five apiaries alone; and whether removing the queens before swarming was a success, and just how you did it."

"Well, there it is, Charles. Like all the others you want me to give you the whole method of management from May to September; and were I to do so in detail it would take all day, and may be all night, and then you would not remember a half I would tell you, especially some of the fine points that would seem of no great consequence, but which are really of great importance. I will, however, answer your questions in part, and will from time to time give you more. First, you ask how I succeeded in my management of several apiaries alone. I answer, that the attempt was a success, though but little flesh remained on my bones at the close of the season. But I am pleased to say that I have regained 20 lbs. of the lost flesh. From the five apiaries I secured 7 tons of comb honey in sections, and 1200 lbs. of extracted. This was all secured and hauled home without help, besides caging and mailing 282 queens, and writing well, I don't know how many letters. From these five apiaries the queens were removed as soon as eggs were found in queen-cells, and in from 12 to 18 days virgin queens were given these queenless colonies. This I do by running them in the sections that are usually on at this season. I will give you more when you call again. Good-day." A. E. MANUM.

Bristol, Vt., Feb. 13.

(*To be continued.*)

[We are very glad that our correspondent has resumed the use of his pen again, and we hope he will not waste any time in the book-business. That department of bee-literature is already overdone. He will reach a far greater number of readers through the bee-periodicals, and we trust he will favor us with the items of his experience during the past summer. Details! these are just the very things bee-keepers are clamoring for. Too much of our bee-literature is made up of generalities. We once said to Dr. Miller that one valuable feature of his "Year Among the Bees" was that he told all about the *little things* that are so necessary to know. We are not at all afraid that our busy friend Mr. Manum will give too many details—the more the better. Now, instead of writing personal letters to so many individuals we trust he will tell his experience through the columns of GLEANINGS, and thus save himself a great deal of time, and do a vast amount of good besides.]

A BOUNTY NOT DESIRABLE.

ANOTHER PHASE OF THE SUBJECT.

As the discussion of "bounty or no bounty" is on, allow me to say just a few words on the negative side of the question. It seems there are three points to consider: First, if the government gives a bounty on sugar, should we not also have a bounty on honey? Most assuredly we ought; for any one who has studied the subject at all knows that sugar does compete with honey to *some extent*. Second, is it right and proper for the government to give a bounty on sugar, honey, or any thing else? I say no. The functions of government do not include the right to tax the great mass of its citizens for the benefit of a favored few. The principle underlying the whole system of bounties is wrong in the abstract.

Dr. Miller argues, with Pope, that "whatever is, is right." To many persons this kind of reasoning savors strongly of that of the Middle Ages, when monarchs claimed that every thing they did was right because a king *couldn't* do wrong, even if he tried. Again, Dr. M. says he isn't politician enough to know whether the giving of the sugar bounty was a righteous act or not. Please ask him if he has forgotten that, "for an intelligent and studious people, a republican form of government is the best in the world; for an ignorant or indifferent, the worst;" and "it is the first duty of every American citizen to study and understand economic government.

Lastly, is the bounty on honey desirable if right? I don't believe it is, because, though it would put some extra money into the bee-keepers' pockets at first, within a few years a multitude of honey-producers would arise and overstock the market, causing the bottom to drop out of already low prices. R. C. EWING, JR.

Liberty, Mo., Feb. 10.

BOUNTY ON HONEY.

NOT DESIRABLE IF NOT RIGHT.

In discussing this question on page 80, Dr. Miller's logic all rests on a good many *ifs;* and if the first *if* is displaced, his whole fabric of logic comes tumbling to the ground, as others of like character do. The fact that we have a law that *gives* two cents a pound to those who make 500 pounds of sugar or over, does not prove that the law is right. But I suppose that Dr. Miller could give no other proof of its justice except that "whatever is, is right." The righteousness of it *has* been questioned. I do not believe that our law-making power has yet advanced so far that it is infallible. I know that it once authorized and protected slavery. I know that it has legalized, and in some places does now legalize, gambling; and I know that it does to-day, in the greater portion of our country, and in every Christian nation, legalize and take its share of the profits in that crowning shame of civilization, the drink-traffic. Therefore the simple fact that a law has been enacted is not conclusive evidence that the principle recognized by it is just. But we are not left in uncertainty on the point under discussion by the courts, for we have many decisions by them, and, so far as I know, they are all to the effect that taxation for the purpose of giving bounties (excepting bounties for the destruction of wild and ferocious animals, and mischievous vermin, and the like) is not legitimate, and some of them characterize it as robbery. The State of Pennsylvania (and probably others) has prohibited it in its constitution; and no town, village, or city, can legally levy a tax to give a bounty to any individual or corporation for the purpose of encouraging or carrying on any kind of manufacturing or other business. The principle is plain and simple, as laid down by the courts, that the government can not take *my* money by taxation, and *give* to some one else. It can tax me for the necessary expenses of the government only.

Now, it is a fact that two wrongs can not make one right; and if a bounty on sugar is wrong in principle, and results in a special injury to the honey-producer by competition (which it does not), it will not make it right to enact another law on a wrong principle by paying a bounty on honey. But the only way to make it right would be to undo the first wrong by repealing the sugar bounty. But is it the *bounty* on sugar that makes it cheap? I think not. *It was taking off the tariff.* On any article that we do not produce enough of, for home consumption, a duty will inevitably increase the price, and the removal of it will reduce the price, as is proved by the removal of the duty on sugar; and the bounty has no effect whatever, except to stimulate home production.

I have dwelt entirely on the question of the justice of the proposed law, because I think, with Dr. Miller, that, if it is not right, it is not desirable; and the only thing in the article of C. F. Thomas that I can not indorse is the intimation that, although he would consider a bounty on honey a fraud on *somebody*, yet, as it would benefit *him*, he would not object very strongly to it for that reason. Let us be just as willing to do justice to others as we are to have justice done ourselves, and then we shall have that most satisfying of all things, a clear conscience. Volney White.

Findley's Lake, N. Y., Feb. 10.

QUEENS BY MAIL TO AUSTRALIA, 11,500 MILES AWAY.

A BIT OF HISTORY.

Perhaps the readers of Gleanings would be interested in a brief history of mailing queens, before any thing is said regarding the title of this article. The first queen ever sent by mail was sent out by C. J. Robinson, of New York, I believe, he sending the same to Rev. L. L. Langstroth in the early sixties. From this sprang the sending of queens through the mail, although most queens were sent by express previous to the seventies. About 1875, mailing queens became quite common; but for them to reach their destination in good order, at that time, where shipped more than 1000 miles, was the exception rather than the rule. During the early eighties this part of our business had so advanced that nearly all were successful in sending queens to all but the more remote parts of the United States and Canada. At that time I had no trouble in having nearly every queen go alive, except when sent to the more remote parts of Texas, California, Oregon, and the Northwest Territory of Canada. I can well remember the losses we had in trying for these places, especially in Southern Texas, where the queens had to endure from two to six days of staging in the hot sun, confined in a close mail-bag, on the last end of the route, when their vitality was well-nigh exhausted by the rough usage they must previously endure. I also remember what a feeling of relief came over me when, through the Good candy and a modification of our cages, I had no longer any trouble in having queens reach these more remote parts in safety. Having accomplished this I next tried sending a queen across the Atlantic Ocean, to Scotland, a distance of about 3500 miles, which went safely. This was in August, 1883, an account of which will be found on page 599 of Gleanings for that year. Mr. Cameron, to whom this queen was sent, thought this was the first queen that ever crossed the Atlantic Ocean by mail, and so wrote; but I believe later facts reveal that the honor of sending the first queen across the ocean belongs to Frank Benton, he sending them from the Old World over here. Since 1883 I have sent several queens to the British Isles and the West Indies, having little more trouble in sending to these countries than in sending to the more remote parts of our own country. In August, 1884, I mailed a queen to New Zealand, the same reaching there just alive, as is given on page 24 of Gleanings for 1885. The next trial proved a failure, as this last queen was 72 days *en route*, I knowing nothing at that time regarding the running time of the steamers which ply between here and that country. After 1885 I made no effort to mail queens a greater distance than 4000 miles, till the present season, during which I have mailed 15 to Australia.

HOW SEND?

By "how send?" I mean, shall they go by letter postage, or what is termed first-class matter, when sending queens to foreign countries, or shall they go as samples of merchandise, or by sample post? Page 72 of Gleanings for 1891, and also page 970, tells us to put on letter postage when sending queens to New Zealand or Australia, or, in other words, send them as first-class matter. If friend Root will read his third paragraph in second column on page 72 (that part of it which is taken from the Postal Guide) over again I think he will see that he made a mistake. As I read the Postal Guide and also his quotation, to all the countries mentioned previous to Australia, queens go as samples of merchandise, or as fourth-class matter, hence are not subject to letter postage, which he says we should put on. Wherever I speak of the Postal Guide in this article I mean the January edition, 1891, as, so far, the edition for 1892 has not reached us. Australia has since then gone into the Universal Postal Union, which affects the postage on letters to that country; but, if I am right, the postage on samples of merchandise remains unchanged. Page 849 of the Guide, in speaking of prohibited articles, to *all foreign* countries, mentions in the list "live or dead animals or insects," which, of course, includes bees. But to this there are certain exceptions, and one of these exceptions is the one alluded to by friend Root on page 72, where queen-bees can be sent to certain countries in cages 5x2x1½ inches. I also note that "other articles * * * may be transmitted in the mails to foreign countries * * * and exchangeable in the mails with said countries when inclosed in the form prescribed for such articles in domestic mails." Now, as queen-bees can go to the Hawaiian Kingdom (Sandwich Islands) as samples of merchandise; and as the same steamers which carry the mails from San Francisco, Cal., to this kingdom go on through to New Zealand and Australia, I take it for granted that "when inclosed in the form prescribed for *such articles* in domestic mails," queen-bees can go right through to Australia as *samples of merchandise*, or by *sample post*, if they can go through at all. Now, if I am right in this matter, the size of cage (5x2x1½) has nothing to do with queens to Australia; for if they are allowed to go there at all they will go in any cage that would be allowed in our domestic mails, and the dimensions or limit in size to such cages has never yet been fixed, that I am aware of. Taking this view of the matter, I acted accordingly, and have the satisfaction of knowing that queens by parcel post at four cents postage for each four ounces or fraction thereof reached their destination in better condition than when sent as first-class matter, as a part of the 15 were sent.

Before closing this part of the article, I wish to say that, when we come down to strict right, I don't think that bees are really lawful in the mails to Australia, and hope that some effort will be made through the Bee-keepers' Union or otherwise so that it may, in the near future, be lawful to so send them, not only to Australia, but to all parts of the world, for, evidently, the infusing of new blood into our apiaries every few years is to be of great advantage to all. G. M. Doolittle.

Borodino, N. Y.

To be continued.

[Our reasons for putting letter postage on packages of queen-bees addressed to New Zealand and Australia are found in the following extracts from Postal Guide, January, 1892, page 905:

> Queen-bees, in wooden boxes not exceeding 5x2x1½ inches in size, closed with a wire screen protected by a movable wooden lid, may be sent to the Argentine Republic, Belgium, Bulgaria, Chili, Colombia, Congo, the Dutch West Indies, the Danish West Indies, Egypt, Guatemala, Hayti, Sandwich Islands, the Republic of Honduras, India (British), Italy, Liberia, Mexico, the Netherlands, East Indies, Paraguay, Portugal and the Portuguese Colonies, Roumania, Siam, Spain, and Switzerland, as *samples*

> *of merchandise;* and to Austria, Hungary, France, Germany, Greece, Luxemburg, the Netherlands and Netherlands Guiana, Norway and Sweden, provided postage thereon is *fully* prepaid at the letter rate; viz., 5 cents per ½ oz. or fraction of ½ oz.
>
> No provision has been made for the exchange by mail of samples like those above referred to, with any foreign countries *other than those herein named.*

Italics are ours; and, as we understand it, it makes it unlawful to send queens at sample rates to New Zealand and Australia. The Postal Guide says further, page 906:

> It is forbidden to send by mail: Articles other than letters which are not prepaid at least partly, or which do not *fulfill the conditions required* in order to enjoy the reduced rate. Packets of samples of merchandise not fully prepaid at letter rates, which have a salable value, etc.

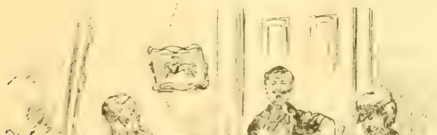
Since the two countries in question are not mentioned in the list of countries to which we *may* send queens by mail, they should go at letter rates, if at all.

We quite agree with you, that we have no direct permission to send queens to Australia, and it might be considered unlawful. We will see what can be done in the way of having Australia and New Zealand included in the countries named.]

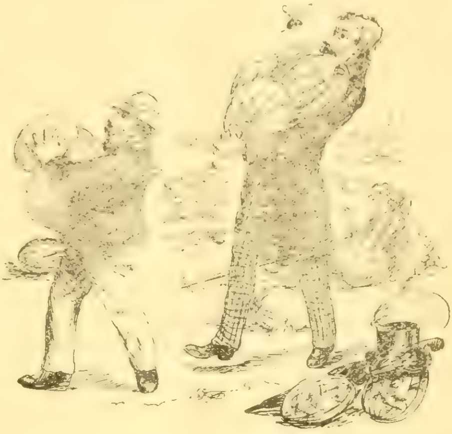
RAMBLE NO. 54.

IN THE GOLDEN STATE.

In the Sacramento Valley. After leaving Utah and the extensive white salt plains north of Salt Lake City, we encounter much the same kind of barren plains we found on the east of Utah, except that here is a stunted growth of sage bushes, and the soil is white with alkali. It was a hot day, and a little air from an open window would have been refreshing; but any one having the temerity to raise a window the least would soon feel the effects of the fire pungent dust. All night and half a day in dust was enough to endure, and it was with pleasure we noticed more thriving towns, and the rushing waters again brought vigor to vegetation. We follow the course of the Truckee River for a long distance, climbing up the Sierras, passing the noted Donner Lake, surrounded by lofty mountains, and looking very picturesque as we look down upon it from the mountain-side. It is in this region that we pass through 40 miles of snow-sheds, and at last night closes down upon us just as we reach the very summit of the Sierras. At two o'clock in the morning we were aroused and told that our long journey was at an end, and that we were in Sacramento. The rest of the night, and until a late hour in the morning, we rested sweetly in the Western Hotel. They here expect Eastern travelers will come, dust-covered and weary, and are amply provided with ablution conveniences for cleaning and polishing a fellow from head to shoes. There is even an effective pocket-cleaner in a back room, called a faro bank; and from all accounts many patronize it. The Rambler put himself through all of the cleaners except the pocket-cleaner, preferring to have his pockets filthy with what little lucre he had left.



POCKET-CLEANERS.



RAMBLER HELPING TO GATHER CANTALOUPES IN CALIFORNIA.

Having a kinsman in the city, at the head of the Pioneer Box Co., we were soon installed into his household, and were also soon busy at work in the factory running a band-saw, and making 5-lb. grape-baskets. This occupation continued about three months. The Rambler was then turned loose among the California bee-keepers.

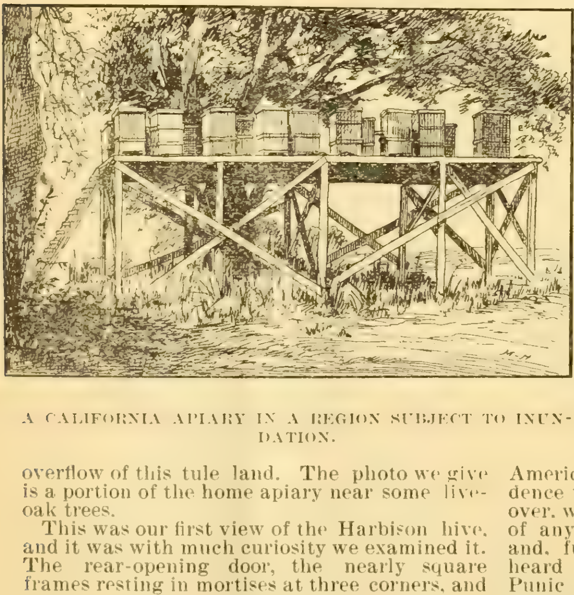
And now, my friends, I wish to say to you who have followed our wanderings in the past, that, when these Rambles commenced, we had not the remotest idea of ever seeing far-away California; and now being in the Golden State we shall not try to predict where next our feet shall wander.

California bee culture has been much written about; but as we have been into the highways and byways of California, into some of its cañons and upon its rugged mountains, and lived for a time in the lonely hut, perhaps we have received some impressions that are new, even to the readers of GLEANINGS; and if, with our photos, an occasional cartoon is thrown in, we trust the staid readers will grant their pardon. It is a sort of chronic habit we have. If any one is thinking of coming to this State to engage in bee culture these rambles will try to set the bee-keeping of California forth just as it is, and then you can take your choice.

The bees first shipped to California were located in the Sacramento Valley. It was here that Harbison won a good share of his fame as a bee-keeper. But now the Eastern man is surprised to find but few large apiaries in this portion of the State. In Sacramento City there are a few small apiaries; and Mr. Lewis, living in the city, has an apiary of over 100 colonies out in the country. The most extensive bee-keeper in the county is Mr. Adam Warner, 12 miles down the river; and learning that he had over 200 colonies, and was quite a successful honey-producer, we availed ourself of the first opportunity to call upon him. To get the 12 miles we followed the sinuous course of the Sacramento River for 20 miles on one of those boats that have a large paddle-wheel in the rear. In early times the river was noted for its purity; but now it has a very dirty and even muddy appearance. This is caused by hydraulic mining on the American, Feather, and other of its tributaries. The lands on both sides of the river are subject to overflow in the rainy season, and it is held in its course by levees.

Arriving in Clarksburg about 2 P. M., we soon found Mr. Warner's residence, and found him and his ten-year-old daughter gathering muskmelons, or cantaloupes, as they call them here, and they grow with wonderful vigor and productiveness. We could easily see that Mr. W. was in some anxiety about getting the cantaloupes picked before dark, so the Rambler got on his lot row every time, and helped finish the job.

Mr. Warner is a sturdy German, and has been upon his present ranch for 20 years. He has substantial farm-buildings, and his barn is large and much like an Eastern one, which is not often seen in this country. His honey-house was the largest and best we have seen in California. It is mounted on posts, the lower ends resting in a pan of tar to exclude ants, and it is effectual in operation. Mr. W. uses the old-style Harbison hive exclusively, and raises comb honey. There was no apiary in sight of the house, and we were informed they were out in the tules (pronounced *tu*-les). Tules are very large rushes that have a luxuriant growth upon these low lands. We found the home apiary out about 80 rods from the house, and it was the most novel apiary we ever saw. The hives were mounted upon platforms over eight feet in height, wide enough for two rows of hives, and an alley between them, with stairs at the end. Some 25 or 35 hives were mounted on these platforms, and Mr. W. had several apiaries all mounted in the same way. The reason for this high elevation is because of the annual overflow of this tule land. The photo we give is a portion of the home apiary near some live-oak trees.



A CALIFORNIA APIARY IN A REGION SUBJECT TO INUNDATION.

This was our first view of the Harbison hive, and it was with much curiosity we examined it. The rear-opening door, the nearly square frames resting in mortises at three corners, and room above for only one crate of sections, appeared to me as little better than an old-time box hive. Mr. W. was pleased with the hive, however, because he could so easily move it from place to place and carry it up those steep stairs. His hives were all made to take the old-style two-pound Harbison section; but the markets calling for the one-pound section it was with regret he had substituted them. This using a shallow crate left two inches of space above, which the bees made haste to fill also. To prevent this, Mr. W. had two-inch plank sawed just the size to slip in on the top of the crates. When asked why he did not knock off the cover and put on a rim, and put on two crates of sections, he said it would cost too much. We could see but little difference between the cost of the necessary shallow rim and the plank, while there was a certainty of getting good returns from the space occupied by the plank.

Mr. W. employs no one to attend to his out-apiaries; and to prevent swarming he practices division, paying no attention to which part has the queen. But in spite of the division many swarms absconded, and a church was pointed out that had four swarms in as many spires. A schoolhouse had several, and many dwellings were also pestered with bees in many places. During the past season Mr. W. obtained only a light crop of honey; but taking a series of years he has found honey-production profitable, even here in these low lands, and has found a ready market in Sacramento. There is much fruit near his apiaries—alfalfa, clover, and hundreds of kinds of wild flowers. We enjoyed true German hospitality for the night, and returned to Sacramento by four-horse stage the next morning, through a country devoted to fruit and wheat raising. RAMBLER.

PUNIC BEES; THEIR TEMPER.

BY HALLAMSHIRE BEE-KEEPER.

In your Nov. 1st issue you say, respecting the Punic bees, that they will sting like other bees, though it has been claimed that they won't. If you will please look up my descriptions of these bees I don't think you will find any words of *mine* that can be construed to mean or imply that they are *stingless*, or can not sting; in fact, when they have the swarming fever on they are easily provoked into stinging, but not more so than any other race under the same influence; and, moreover, they are more easily kept under control at this time by means of smoke or carbolic acid. As soon as I saw that the idea was being spread about, that they *could not sting*, I published an article on the subject in the *Journal of Horticulture* for Aug. 20th last, and I am surprised you have not copied what I say on the matter.

TEMPER OF PUNICS.

While not for a moment going so far as to say they can not sting, I do say they are the tamest and gentlest bees I have ever seen, and this includes every race that has ever reached America; putting their stings out is no evidence that they are ready to use them; moreover, when they do sting it is the least painful of any, while Syrians are the most painful; and, further than this, I have not seen nor heard of a cross-tempered stock of *hybrid* Punic bees. When going to the heather last August I nailed labels on 50 hives of Punics, without hat or other protection, and not a bee attempted to sting, though nothing whatever prevented their doing so, beyond their mild disposition.

There is only one objection I can find to these bees, and that is their color; for, somehow, I hate *black;* but this prejudice is fast wearing away after six years' experience with them. I have also now a number of other good points to add to what I have already given.

Punic bees are the future bees, where the main consideration is harvesting honey in the greatest quantity and with the least trouble, expense, or unpleasantness; in fact, I should like to guarantee any stock of bees with Punic blood in it, whether through drone or queen, to yield 20 per cent more honey, if I could have the surplus; and as virgin queens can be sold for a dollar, bred from imported mothers, with guaranteed safe delivery and introduction, perhaps mating also in the season, the gain to those introducing such will be apparent.

VIRGIN QUEENS.

You have persistently tabooed these, saying they could not be safely sent a distance and then safely introduced. For three years I have been sending out very large numbers all over the British Isles; and where the instructions I sent were followed, *not one failure has resulted.* How far I am boasting can be judged by the fact that every virgin queen I sent to America the past season, that landed alive, was safely introduced; and though Dr. Miller and Mr. Newman lost them subsequently, in a manner unaccountable to me, that fact, that, though they were *six days old when mailed*, and at least one mated and got to laying, should be proof that buying and selling virgin queens is a solved problem; anyhow, it is here, and I guess that friend Pratt has found it so too. What is now wanted is to let people understand there are parties willing and anxious to guarantee safe introduction for a stated price.

There is no jugglery in the matter. I pointed out in an article in the *Journal of Horticulture* for April 26, 1888, scientifically, both the cause of past failures and how to be successful. Virgin queens will about revolutionize bee-keeping; as, when quite understood, most will buy all their queens as virgins. Here in England I sell them at 60 cents, delivered free, guaranteed against loss in delivery, introduction, mating, or winter dysentery. I guarantee the latter, because I claim that this disease is solely the result of the way queens are reared. Each queen is six days old when sent out, so may mate in two days, and be equal to a laying queen. A HALLAMSHIRE BEE-KEEPER.

Sheffield, Eng., Dec. 12, 1891.

[We do not know that any of the advocates of Punics stated positively that such bees would not sting; but the impression left upon our minds from the reading of their articles was such. In fact, others seem to have understood it as we did. In regard to the *Journal of Horticulture*, it would be quite impossible for us to make an extract from it, inasmuch as there are very few of the foreign exchanges that we can read, and those are all in the bee-journal line. It is utterly impossible for us to cover even all the agricultural papers in this country.

We do not think the traffic in virgin queens is profitable, either to the queen-breeder or to the receiver of such queens, though there may be exceptions in cases of new races of bees, where it is desirable to test a cross, as you say the cross of the Punic with any other race is superior to the original stock. As some of our readers may not know the method by which Hallamshire Bee-keeper accomplishes virgin-queen introduction, we make an extract from one of his circulars:

> On receipt of this, prepare colonies to receive them as follows: Take three or more combs with some food in, but no *unsealed* brood or eggs, and put them in a hive; then shake into these combs the bees off two combs at least, from a good strong stock, taking care that the queen is not among them. Now remove this strong stock to a fresh stand, and set this new one in its place, which will receive most of the flying bees also.
>
> I do not advise using any of the combs from the strong stock, on account of the risk of getting one with an egg or two in it.
>
> You may prepare a colony for the queens in other ways as long as no queen or means of rearing one is left; but I find the above the most convenient and satisfactory way of any. The bees must be queenless, and have no means of rearing one, forty hours at least, or you will fail to introduce the queens we are sending you.
>
> As soon as you receive the queens drop them between the combs among the bees *after dark*, alone. On no account must they be caged, scented, or daubed with honey. In two days, sealed brood may be given them; but unsealed brood or eggs must not be given them until the queens begin to lay, or they will be almost certainly "balled" at the entrance on returning from the bridal trip.

It is no doubt the method used by Dr. Miller with success, on the queens which he received from Hallamshire Bee-keeper.]

MORE GLUCOSING.

BYRON WALKER TELLS AN ALARMING STORY.

From the comments made on the article of Mr. Tweed, page 32, Jan. 1, I see that you, in common with several other editors of papers devoted to our pursuit, are inclined to discredit the testimony given by Mr. T. As I had already repeatedly given evidence on this point at length, when this subject was up for discussion last year in the *Review*, and also in the *American Bee Journal*, I have hesitated to say any thing further until others had had their say. As you evidently have not accepted the statements made by myself at the time referred to as true, perhaps it is hardly worth while to repeat them now.

I will simply say here, that, after spending several months on the Chicago market, I fully agree with Mr. T.'s views. There are in this city alone about a dozen establishments who put up glucose honey for sale. Among them are three of the largest wholesale grocery houses in the country, one of which, whose salesman has charge of that department, informed me they sold last year 200,000 lbs. of honey. You can judge of the character of the goods sent out when I tell you that they deliver at the doors of retail groceries, in any part of the city, these goods in glass packages holding over three-fourths of a pound of the mixture, at 87½ cts. per dozen in single-dozen lots. I know what I am talking about when I say that a large majority of the grocers of this city handle such goods, and that not one grocer in a hundred keeps pure extracted honey for sale, or can be induced to buy such at a price not much higher than he is paying for the adulterated goods. Although the past season has been such a poor one for Western bee-keepers, the city markets are overstocked with extracted honey at present low prices. We may well ask, "What will the result be when there is a full crop to market?" There is no doubt in my mind that, had we such a law as you suggest, with proper provisions for its enforcement, the demand for extracted honey for table use and for medicinal purposes would be tenfold greater than it now is in city markets, and prices would be much more satisfactory. The question of the hour is, "Shall bee-keepers bend every energy to the production of honey so cheaply that glucose mixers can't undersell us (glucose is now worth less than 2 cts. per lb. in car lots), or shall we devote a portion of these energies to securing such a law, and to seeing that it is enforced when secured? Byron Walker.

Chicago, Jan. 25.

[See editorial elsewhere.]

QUEEN RESTRICTION.

THE EXPENSE OF SOME OF THE NEW DEVICES; BOUNTIES.

I have noticed for a while back a book advertised in Gleanings that tells all about "Queen Restriction." I sent for it, and have given it a pretty thorough examination. The great question of the honey problem of the day is, "how to produce more honey at less cost." The idea is advanced by quite a number of prominent apiarists, that this end can be attained by either restricting or altogether removing the queen, thereby preventing swarming. I remember reading an article in the *Review* of June, 1891, from Mr. Aikin, of Colorado, who, while living in Iowa, I think, practiced the removal of queens at the beginning of the honey season, and allowing the colonies to rear another queen, by which method claiming to increase his honey product very largely, and also preventing swarms. For increase he gave the best old queens a frame or two of brood and allowed them to build up.

Now, this is an interesting question, not only to myself but to many of the bee-keepers of this county, and, I think, to the fraternity everywhere. For this reason I wish to discuss the claims advanced for queen restriction, and will leave the queen-removal plan to be discussed by Mr. Aikin and others who have tested it.

In the pamphlet before me on this subject, the author claims for his restrictor (which confines by queen-excluding zinc the queen to one or more frames. He seems to think four frames about the right number), that, by its use, he can get a much larger yield with much less labor than by the plan of removal. He comments to a considerable extent upon the backbreaking process of removing queens and cutting out queen-cells. We are all well aware of this fact, and I have never found any more disagreeable job, during the hot days of June, than that very thing. But the average beeman expects work, and lots of it, so we must offset the work by the cost of the restrictor. For a four-frame restrictor the price is 69 cents each, or $6.70 for 10. It strikes me that, in a large apiary, that would be quite expensive.

Now, on the other side, take the labor on ten hives. By my plan of removing queens I want only ten minutes to each colony, and fifteen minutes for cutting out cells. Of this plan I may write further before the honey season. However, we will allow thirty minutes, so as to give plenty of time for each operation. That gives one hour for each colony, to remove queens and cut out cells. At $2.00 per day the cost for the ten hives is just $2.00 for ten hours' work. But I claim that the young queens raised by this method would be enough better to more than compensate for the day's work. Am I not right?

I do not desire to disparage the queen-restrictor. I am simply counting the cost, and that must be done, in order to solve the problem.

I may also state, in behalf of this method, that the author advises wide frames and sections in the lower story in connection with the restrictor. I have never tried getting honey from the lower story, but we have lots of men who have tried it. Let them tell us something about it. I hope this will provoke a general discussion all along the line upon this question, as I am sure that it is an important one, and I for one want to weigh the evidence before the season opens. After working-time comes we can operate on a more matured basis.

AUTOMATIC SWARM-HIVERS.

In these we have another "restrictor;" and while they may eventually be perfected so as to fill the bill, which does not seem to be the case yet, still the question of cost must be considered. In the most of these devices it is necessary to provide an extra hive, whether it will be utilized or not, which of itself is quite an expense, and, to my mind, an unnecessary one; for if we are to produce the most honey at least cost we must avoid swarming except for desirable increase. The device itself, also, is too much expense to be used in an extensive apiary when there is so much uncertainty as to whether many swarms will issue or not; therefore, in summing up I must incline to the belief that dequeening has the floor.

BOUNTY.

And now, as if there were not enough troublesome things to perplex the bee-keeper, up pops an entirely new idea. I want to say that I am opposed to bounties. If the government had given sugar industries and capitalists a bonus and a stipulated sum for the first 100,000 lbs. produced, and then stopped at that, and at the same time limited the time to five years or less, then the matter would have been disposed of in a comparatively short time, and prices would have become settled, and experimenters and investors would have been amply remunerated for advancing the industries of the company. But as it is, the thing may go on indefinitely, and finally become a bone of contention between the political parties, and then—God have mercy on us! Another thing about "boosting" up any particular business or pursuit, is, that it is apt to cause prejudice in the minds of consumers and thereby defeat the object aimed at. Bee-keepers generally depend upon a local market, which renders them a mark of displeasure on the part of those not benefited, which would not be so much shared by their more distant colleagues, the sugar-producers. We as honey-producers would better bend our energies to have the sugar bounty arranged as mentioned than to try to offset it by another bounty on honey. S. A. Dyke.

Pomeroy, O., Feb. 8.

[It seems to us that our correspondent has been too liberal with his time in hunting up queens. We have on several occasions in about two years, opened up, found the queen, and done such other work as clipping wings and tearing down queen-cells, at the rate of about forty hives in two hours. Some of these colonies were two-story. We did not examine all the brood surface, but went through the hive pretty thoroughly—a thing we like to do once or twice during the season. This would allow only three minutes per hive; and yet we do not think we particularly hurried to get through the work. But, as we have before explained, we can, a good share of the time, diagnose the colony with little or no frame manipulation.

We rather hesitate to speak about the cost of queen-restrictors, because it might appear that we were interested in pushing the sale of our own articles; and we will only add that the object of queen restriction, advocated by C. W.

Dayton, is primarily, as we understand it, to control unnecessary brood-rearing out of season, and thus prevent a large force of consumers at a time of year when there is no honey to be gathered. Just how far it will prevent swarming we are not able to say.

THE OHIO STATE CONVENTION.

DR. MILLER'S REPORT OF IT.

The Ohio State convention at Cincinnati, Feb. 10-12, was different enough from the previous meeting of the same society, so far as members in attendance were concerned, to have been a meeting in a different State. But Ohio is a good-sized State, and Cincinnati is at the southern extremity. The meeting was not unwieldy on account of great numbers, but there was no lack of interest from beginning to end. Some matters came in for more discussion sometimes than they probably would have had if the veterans had been out in fuller force.

I hadn't seen the president, C. F. Muth, for several years, and was surprised not to find him older looking. One thing that undoubtedly helps to keep him young is the fact that he has a son so competent to take his father's place in business matters, and this allows the father less anxiety and more outdoors. At one of the sessions of the convention Gus came in to speak to his father about something, in a whisper; and as he did so, standing behind his father's chair, he stooped forward and put his hand on his father's shoulder and partly about his neck in that easy, good-natured way that said more plainly than words, "We're old cronies, and fully understand each other." It did me good clear through.

That same long-geared German, C. F. Muth, is a thoroughly well-posted bee-keeper, and you can not hear him take up any topic in bee-keeping without being likely to learn something from him. He mentioned an item as to shipping bees that I do not remember to have heard before. He has had a good deal of experience in having bees shipped long distances from the South; and his instructions are, to move to a new location any colony to be shipped so that it may stand there a day or two before shipment, and allow its flying force to go back to the old location. This leaves only young bees to be shipped, and he says they will stand a long confinement. I believe he allows another colony to be on or near the old stand, to catch the returning bees, and I'm not sure but he sometimes may allow young bees from other colonies to be shaken in front of the one to be shipped.

Without attempting to give any report of the convention, I will mention some of the points that seemed of special interest. It was asserted that, when bees work on asters, a sour smell is readily discernible, even at some distance from the hives, something like the smell of old sour milk.

Rev. L. Johnson said aster honey was all right till frost; but if bees worked on it after it had been frosted, such honey was poisonous to them.

In peddling extracted honey in the city, Mr. Titus, instead of weighing it, measured it out in a pound or a two-pound bottle, letting the purchaser furnish his own dish. Some honey would stick to the bottle each time, but his honey didn't any more than hold out in weight, because the amount tasted in sampling balanced what stuck to the bottles.

Quite a discussion occurred as to how much help the bees should have in cleaning out their hives in spring. Mr. Muth said he had given up helping the bees clean house, as he found much of the snuff-like material found under bottom-bars was wax which the bees used over again to cap their brood. Mr. Haines held that it was mainly fæces, and asked bee-keepers to note whether, in the spring, such material was not always found directly under the cluster, instead of under the outside seams, where some argued it would be found, dropped by the bees as cappings gnawed from the outside combs in uncapping them.

The unjust railroad rates on extracted honey were ventilated. Mr. Muth said it cost $1.50 to get a barrel of molasses or syrup from New Orleans to Cincinnati, and $5.50 for a barrel of extracted honey. The difference between the two, if it had any effect on the rate of freight at all, should be in favor of the honey, for honey is a little heavier for the same bulk, and, if granulated, not so likely to leak.

Comparing the different kinds of comb honey as to toughness of comb, Mr. Muth said linden comb is very tender, hence liable to be broken in shipment; clover not so tender, and alfalfa very tough.

A bee-keeper had shipped honey to Mr. Muth in a glucose-barrel, the barrel showing what it had previously contained; and this barrel, being seen at his place of business, had secured for him a little free advertising in the newspapers, for which he was not anxious.

Moral.—Don't ship honey in any thing that *looks* like adulteration.

At this convention I had occasion again to notice the importance of having outside conditions all right at a convention. The meetings were held in a hall having the very common fault of being too large, making it very difficult to hear some of the things said, even if all were perfectly still, and the difficulty was further increased by the hall facing on one of the principal streets with its constant rumble and rattle. On the second evening the session was held in a comparatively small inside room, from which the noise of the street could not be heard. The contrast made a very favorable impression in favor of the smaller room. C. C. MILLER.

Marengo, Ill., Feb. 23.

LADIES' CONVERSAZIONE.

ALSIKE CLOVER.

ITS VALUE, AND HOW TO RAISE IT.

The value of alsike to the bee-keeper makes it worth his while to extend its culture in every way possible. In inducing his farmer neighbors to grow it he not only benefits himself but also his neighbors as well. Few appreciate its value. Rightly managed it may be made to yield three products—honey, hay, and seed, which, in a little more than a year, are equal in value to the land on which it grows.

With suitable soil, and in competent hands, ten bushels of seed to the acre is a possible yield, which, at the present prices, $7.50 to $9.00, will purchase an acre of good farming land almost anywhere. There are, besides, the hay and honey.

When the cultivation of alsike is recommended to farmers, one or more of the following objections are usually offered: 1. It does not germinate well; 2. It does not produce a paying crop of seed; 3. It does not produce as much hay as red clover; 4. The hay is of inferior quality. If fed to milch cows, the butter produced is white.

In the first case, either the seed was poor or the ground was not in proper condition. A sample of seed should be tested before purchasing.

In the second case, a short crop of seed is generally due to a lack of judgment as to the right time for cutting, and to improper handling afterward. .

In answer to the third objection, it may be stated that, though the yield of hay may not be as great, the value of the whole product is greater.

Finally, the hay is better than red-clover hay, the stems being less woody, and devoid of the fine hairs which render red clover hay "dusty." In this market, timothy mixed with alsike is beginning to be rated No. 1, while timothy mixed with red clover is No. 2. As to its effect upon butter, a few roots, carrots or the like, fed to cows will remedy that. Often failure is the result of making a trial on so small a scale that the crop is neglected; then the grower thinks, of course, it is "no good."

A neighbor, Mr. McCall, has given to the alsike-clover plant the same kind of intelligent and careful study that Mr. Terry has given to the potato, with equally satisfactory financial results. Mr. McCall is too busy "compelling success" to write of his methods for the benefit of others; so, believing that they would be interesting and profitable to many, I interviewed him one evening. The following are the facts brought out:

Mr. McCall raises alsike for the seed, so his methods accord with his aim.

The most suitable soil is a clay loam, with a good proportion of the vegetable matter; but it may be grown on almost any kind of land.

The land, having been deeply plowed and thoroughly pulverized the previous autumn, and sown to wheat, is harrowed in the spring with a fine-toothed harrow—an operation greatly benefiting the growing wheat. The clover seed is then sown at the rate of 8 to 10 pounds to the acre. A lighter seeding is often recommended, but Mr. M. believes that better results on the whole are obtained by a more generous seeding. The sowing should be done as early as possible, so that the seed may catch some of the spring rains. Here, the first of April is about right. It is important that the seeding be even. Bare spaces certainly lessen the crop, while overcrowded ones do not increase it. It is by attention to small details that success is won in this as in any other undertaking. If the seeding is done by hand, mixing the seed *thoroughly* with several times its bulk of sand may aid in its even distribution.

The seed may be sown with oats, if preferred, provided the ground can be put into proper condition early enough.

Soon after the removal of the wheat from the ground, the young clover-plants should cover it. They often make such growth as to blossom and mature seed the first season. Possibly, by sowing the seed alone, and under the most favorable conditions, a fair crop of seed might be obtained the first season; but the second season is the one depended upon for the main crop, under ordinary circumstances. In the autumn and early spring the field may be lightly pastured, preferably by sheep, but care should be taken to remove the stock before damage is done. By early June the clover-field should be a sheet of vivid green, with no earth visible. Later, the pink and white blossoms appear, borne at the ends of the main stalk and branches. This is the bloom which will furnish the largest and best part of the seed crop. Keep watch of them, for they soon disappear under a set of somewhat smaller blossoms, which in turn give way to another, the bloom continuing several weeks. During this time the bee does double duty in improving the yield of seed by cross-fertilization and in gathering the nectar with which the florets are abundantly stored. Mr. M., realizing the value of its labors, purchased ten colonies, and feels that they paid for themselves in the first season by increasing the yield of clover seed, to say nothing of their gathering 300 lbs. of the finest honey in the world. Had he been an experienced bee-keeper, instead of the beginner that he was, the honey crop would have been twice as great. A week or more of bloom passed before the boxes were put on at all.

To go back to those first clover-blossoms—they will have become a rich brown in color, and *nearly* dry. Now is the time to cut it. Just here is where a day's delay means partial if not total failure. Waiting for the later and inferior heads to ripen, the earlier and more valuable ones, becoming *entirely* dry, burst their pods and scatter the seed upon the ground. When cut at the proper stage, a large part of the foliage is green and tender, and, with the immature heads, furnishes a hay equal if not superior to that from the first growth of red clover.

After it is cut, moisture does not injure alsike as readily as it does other hay. To avoid scattering the seed, the hay should be handled as little as possible during the curing, and then only when there is moisture enough in the atmosphere to keep the stems pliable—never in the heat of the day. This is the second point of extreme importance. Drawing should be done during the earlier part of the day, after the dew is off, and again in the latter part of the afternoon. Subsequent operations need no comment until the seed is ready for the cleaning process. In order to command the highest price in the market, the seed must be perfectly clean; but as it is so much smaller than any other seed which a farmer handles, the fanning-mill requires finer screens than those ordinarily used, and the blast controlled so that seed is not blown off in the chaff. Though it requires skill and a good machine to perfectly clean seed without waste, care and ingenuity will often accomplish the desired result with slight expense, and add many dollars to the value of the crop.

The first seeding may be allowed to remain on the ground during the third and fourth seasons, and possibly fair crops may be had; but, on the whole, it is probably better to turn it under after the first cutting, and use the ground for some other crop—potatoes for instance.

The past season was an exceedingly poor one for clover in this locality; but alsike yielded double the amount of seed obtained from red clover when the latter was worth the cutting. Many did not cut it at all.

Flint, Mich., Feb. 15. EMILY E. WEST.

WAX FLOWERS.

MRS. AXTELL TELLS HOW TO MAKE THEM.

As bee-keepers are the producers of wax, it is very befitting that their homes be adorned with wax flowers, which imitate the natural flower more nearly than any thing else. Often, when I have been making flowers, some one would come in, not noticing the material and tools, and remark, "What pretty flowers!" I would hand them to them, and tell them to smell of them, which they would do, thinking they were natural flowers; but the smell of the wax would reveal their nature.

To make a large wreath, a glass the size of 22x24, three packages of single white wax sheets, one of double-strength white for pond-lily, one of red, one of green, one of yellow, and one of orange, will be required. The wax costs about 12½ cts. per package of 12 sheets, and that and the other supplies can be purchased at almost any large drugstore. If not on hand, the proprietor will order it. Be careful to order pure white wax—not dingy or cream-white.

Other colors may be used if desired, but I think a wreath looks better without solid blue, purple, or pink colors, and but little yellow. Colors can be shaded by mixing more or less arrowroot with the paint, which will give a bloom or velvety appearance to the flower.

Two little round-headed tools to mold the petals into shape will be needed, one of the heads about as large as a hazelnut, and the other the size of a hickorynut, with handles two inches or so long, one sharp-pointed, and the other rounding; also a bunch or two of red and yellow stamens for the center of the flowers. Sometimes those can be found in old artificial flowers in the house. Strips of yellow wax, fringed finely, will answer for many flowers. You will also need five cents' worth of powdered mica (called also diamond dust); one cent's worth of coarse wire, about twice as stiff as broom wire; one cent's worth of broom wire, and the same of Prussian blue; English carmine, a dime's worth; four or five leaf-molds, such as a rose-leaf, a small ivy-leaf, suitable for making a white cross, and some larger leaves, as camelia, pond-lily, and maple.

The room to work in should be warm, so the wax will not break—rather more than comfortably warm in winter weather, choosing days to work when the wind is not blowing.

Take natural or artificial flowers and pick to pieces, and cut patterns from them. Have another flower, as nearly like it as possible, to pattern after, or fashion them after flowers in paintings. After one has made a wreath, using some colored wax, then he might learn to paint and tint the wax instead of using one solid color, as I think flowers thus made are more natural and delicate in color than when of one solid color, which is done by rubbing the paints on the under side of the white wax petals, or on the center end of each petal, leaving the points white, or just tinted. Do not get any paint or bloom upon the base of the petals, or they will not stick to the stems. Colors can be shaded by mixing more or less of the arrowroot bloom with the paint. If the bloom is used, the diamond dust will not stick well, or vice versa. The diamond dust, or powdered mica, is to give it a sparkling appearance like frostwork.

To make a rose.—From three sheets of wax laid evenly together, having first been wet to keep from sticking, cut fifteen or more petals, thus cutting three at a time, with scissors loose in the rivet (although any scissors will answer). Before picking the edges of the petals apart, smooth them by rubbing around them a little with the finger. For the stem of the flower, take a piece of coarse wire, about twice as large as broom wire; loop one end down to keep the flower from being pulled off as it works off the wire. In making, cover loop with yellow sheet beeswax pressed into a little oblong ball. Stick on to this fifteen or twenty yellow rose-stamens, or some boughten yellow sheet wax fringed very fine, and firmly wrapped around and curled toward the center. Now stick on more pieces of yellow beeswax; then proceed to mold the petals. Lay one by one in the palm of the hand, and, with the point of the molder, curl the small ones. The larger ones should be molded with the head of the molder. The center petals should curl toward the center, and the others made to curl gradually outward until the last leaves curl toward the stem.

For half-blown buds, make the same as a rose, only more closed, and leave out the stamens. For a closed bud, put wax upon a looped stem and a few petals closed. Put around the buds some green leaves cut like the letter V, and rubbed lengthwise with a molder so as to curl over the bud. Press smoothly around the stem. Now put on green wax enough to make a bud-shaped base for the buds, and press and roll until neatly finished. A little natural green moss stuck on adds to its beauty. Join all together, adding green leaves and one autumn leaf, and cover the stem with strips of green wax. Copy from nature as much as possible.

Camelia and buds are made the same as the rose, but cut the petals nearly as large again, and as many more. Use camelia stamens, or a little white wax fringed, and dipped in carmine.

For dahlia, make a heading as large as a small acorn, on stiff wire, with a little yellow or pea-green fringe in the center. Put on twenty fine petals, twenty a size larger, and forty still larger. Both sides of the petals curl up and around, and touch at top. Press flat at the point where stuck to the stem. A little red paint on the fringes, and rubbed on the under side of the tips of each petal of a white or a yellow dahlia, is pretty; or, rub the paint on the point where it sticks to the stem, showing just a shade of color in the dahlia when finished, leaving the points of the petals white.

For fuchsia, take a piece of wire five inches long. Cover it with green wax; bend it down a little; loop, and stick on a little heading of green or yellow wax; then six long stamens, one in the center a little longer than the rest; or, use fuchsia-centers, then cut four small white petals hollow in the center, with the small molder; stick them to the stem standing up, showing three-fourths of an inch of the stamens. If possible, have a real flower, or the picture of one, to look at. Now cut six long petals; roll lengthwise with the small molder to curl them back. Lay a little fold in each petal where it touches the stem, to give room for all the petals, and to make them strong. The long and small petals should be of different colors; as, purple for the center, or standing petals, and scarlet for outside; or pink for center, and white for outside.

Bridal wreath is made very much as is the fuchsia. It should be of white or lemon color. Leave out the small petals in the center, adding long and drooping stamens.

In the next issue will be directions for making fruit-blossoms etc., and for framing the wreaths when done. Mrs. L. C. Axtell.

Roseville, Ill.

VENTILATING OUR HOMES.

HOW DR. C. C. MILLER "RAISES THE WIND."

Some time ago the subject of having our homes comfortably heated and at the same time well ventilated was discussed in Gleanings. It seemed a somewhat difficult problem to solve—to do this for any thing like a moderate sum. Dr. Miller has considered the matter of pure air of so much importance that we have always used the open-grate Franklin stove, and on no account would he think of having a base-burner, as he could not tolerate the bad air.

Would you believe it? This winter he has a new base-burner, and we have taken an immense amount of comfort with it too. But this stove, the Howe ventilator, is radically different from the ordinary base-burner in the matter of pure air. It takes the place of three stoves—heats the sitting-room, dining-room, and an upstairs bedroom, and could be made to heat more if necessary. It is very easily taken care of. It simply needs to be filled up and the ashes taken out every morning, and it's all right till the next morning. It is so much cleaner than the Franklin, or Low-down, as it was impossible to keep things free from dust with that, dust as often as you might!

But the best of all is the pure air. The air in the house is as good as that outdoors, and no headache in it, as with the ordinary base-burner. There is a cold-air pipe passing through the cellar wall (it may pass through a cellar window) and up through the floor, directly under the stove and into the stove. There is a current of fresh outdoor air passing constantly through this cold-air pipe into the stove; and, being heated by its passage through the stove, it comes out into the room as warm air. Of course, this fresh air does not go into the fire, as in that case there would be smoke and gas in the room. It passes up through outside chambers something like the dead-air space in a double-walled hive. There is also an arrangement at the lower part of the stove to carry off the foul air. One need only to look at the rich dark-green foliage of our house-plants, that look almost if not quite as luxurious as if growing outdoors, to know that the air is pure. Next to the pure air is the saving of labor. Before we got our new stove we had a large wood-stove in the dining-room, and a small coal-stove in the room upstairs. Now they are both taken down. Think of the amount of work saved in not having to run those two stoves, to say nothing of the dirt and dust they would cause, which is no small item! Folding-doors between the sitting-room and dining-room make it easier to heat the latter. The room upstairs is heated by means of a hot-air pipe passing through the ceiling, terminating in a small register. This room is warmer than it was with the small stove. The air that comes out of this register is not air that has already been used in the room below, but is fresh air that has come directly from outdoors, merely heated in its passage through the stove.

The stove, set up ready to light, costs just an even fifty dollars. We think that, in two winters, that amount will be saved in fuel, to say nothing about what is gained in health and comfort.
EMMA WILSON.

Marengo, Ill.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

PROTECTION VERSUS NO PROTECTION FOR OUTDOORS.

The question of winter protection can not be emphasized too strong. Not having the pleasure of a cellar, my bees winter on their summer stands. With good windbreaks both north and west, the loss for several winters (with the mild winters too) has been small indeed. The ten-frame Simplicity hives have the upper story filled with leaves. These are in fine condition, and have hardly any traces of diarrhea. The one-story Simplicity (eight-frame) hives are placed inside of goods-boxes, with leaves around and above the hives. These are going through the winter in excellent shape. A few are left on summer stands without any protection whatever. These are eight-frame one-story Simplicity hives. These are having a rough time of it. The diarrhea has overtaken them, and death is certain.

Colonies well protected are doing well in spite of "bug-juice" for winter stores. For me to meet a cold winter successfully I would have plenty of bees hatched in August and September, little or no pollen, bees put on eight-frames, plenty of *good* honey—not "bug-juice"—six to ten inches of leaves all around the hive, except the fronts and bottoms, and the entrance open full width. With this arrangement no fears need be entertained because of a severe winter.
J. F. MICHAEL.

German, O., Jan. 25.

[You have given us good proof of the value of protection. Our experience so far confirms it. For us, colonies in a cold winter outdoors unprotected won't live until January.]

ADVANTAGE OF SEALED COVER AND WIDE ENTRANCE FOR WINTERING.

As the question of absorbents over the brood-chamber is now being agitated I will add my mite. Some four years ago I wrote the senior editor of GLEANINGS, that, from observation of the effort of bees, I was led to believe an air-tight covering better than a porous one, and that, acting on that idea, I had utilized the leather from our family carriage, cutting it to fit neatly and applying it early, directly on the frames, and letting the bees propolize all air-holes. This with three hives. They came through well, and built up early. A fair-sized chaff cushion was placed over the leather. He replied that the leather was porous. He might have thought differently had he seen it. The following autumn I ventured on seven with leather for covering, and over this a close-fitting ⅞-thick white-pine board, and over all several newspapers, and on them the canvas used during the season. This was in the latter part of October. Of course, in all cases I used chaff over all. I now aim to have all hives as near air-tight, except beneath, as I can. Without being tedious I will say, loss none thus far; but the great advantage I claim for the method is, early brooding and no spring dwindling. My top-bar has a passageway for the bees, and I thereby avoid the use of a honey-board.
W. S. ADAMS.

Guys, Md., Feb. 9.

MANUM EXPLAINS ABOUT THAT HONEYMOON.

Friend Root:—You may say to our Canadian friend, Mr. F. J. Miller (page 104), and others, that A. E. Manum has *not* fully recovered from his "honeymoon season," and hopes he never will, trusting that said "honeymoon" will continue to shine in her fullest splendor. Nevertheless, Mr. Editor, I will endeavor, in a very few days, to respond, through GLEANINGS, to the many calls from our friends. I have been so busy since last May with the bees, house-repairing, and entertaining visitors, to say nothing of the "new queen," that the readers of GLEANINGS have necessarily been neglected. Thanking them all for their confidence and kind words, I remain

Yours truly,
A. E. MANUM.

COLORADO; SNOW TILL YOU CAN'T REST.

I once more find time to send in a few lines from this part of the moral vineyard. It is winter—winter in good shape—snow till you can't rest, if I must use the expression—any way, snow all over every thing—hill, mountain, and valley. The largest snow of the season fell on the 4th of this month. If snow is a sign of a good honey year, this has the appearance of being one of unprecedented greatness, for we have had more snow than we had last year. The past season would have been a good one but for the heavy rains that came just as the honey-flow was coming on. I have been keeping the snow away from the front of my hives. The last time I was out I was wondering to myself how many of the brother bee-keepers were attending to the same business I was. When I scraped the snow away, how they buzzed, just as if they were glad that I was attending to them, and they wanted to let me know it.

In looking over Gleanings I see a great deal is said about combining bee-keeping with other business, and the best kind of business to carry along with it. I do not want to bring up any thing to make arguments; but if it is not out of place I would like to tell what I expect to do this season: I am going to combine gardening with bee-keeping, and raise a large lot of onions, in connection with taking care of about 30 or 35 old colonies and the most of the new ones.

Greeley, Col., Feb. 18. T. V. Jessup.

[We should be glad to have you report your success or failure.]

TO THE CALIFORNIA BEE-KEEPERS.

Through the influence of Prof. A. J. Cook, California bee-keepers may join the State Association by simply sending 50 cts. to the Secretary, J. H. Martin, Riverside, Cal. All the readers of Gleanings know him as the "Rambler." California can not support a bee-journal, but we can have a large State association, and I would urge every reader of Gleanings in the State to send 50 cts. and become a member. Even if you can not attend the conventions you can vote by proxy, and will receive the printed matter sent to members. The dues are only 50 cts. per annum, and it is worth that to be in touch with the leading bee-keepers of the State.

Fillmore Cal. J. F. McIntyre.

[The following is a clipping which friend McIntyre sent along, which will speak for itself:]

ORGANIZATION OF A CALIFORNIA STATE ASSOCIATION ELECTION OF OFFICERS.

The bee-keepers assembled again yesterday morning at 9:30 o'clock, and proceeded to organize a State association, to be known as the California State Bee-keepers' Association.

The following officers were elected: President, J. F. McIntyre, of Fillmore; vice-presidents, L. T. Rowley, of Los Angeles County; F. H. Hunt, of San Bernardino County, and J. A. Odell, of San Diego County; secretary J. H. Martin, of Riverside; treasurer, G. W. Brodbeck, of Los Angeles.

The Executive Committee will consist of the officers of the association, and Messrs. Allen Barnett, of Whittier, and J. W. Strong.

The association starts out with a membership of forty-three, besides three honorary members, Prof. Cook and Mr. and Mrs. A. I. Root. The next meeting will be held in Los Angeles, at a date to be fixed by the Executive Committee. An opportunity was given the gentlemen to become members of the Bee-keepers' Union, and thirteen joined.

In the afternoon Prof. Cook gave a most entertaining talk on the anatomy of the bee. The professor is a fascinating speaker, having been all his life a close student of nature. He has studied carefully all the various creatures of the animal kingdom, and unhesitatingly pronounces the honey-bee the most wonderful of them all. After listening to his interesting address yesterday it was not at all difficult to see how he has so satisfactorily filled a chair in the Michigan Agricultural College for years. He developed the fact that there was more satisfaction in bee-keeping than merely that of dollars and cents. This examining so closely into nature makes men purer; and the further he delves into her secrets, the closer is he drawn to all her creatures.

After an interesting address by Mr. Root the association adjourned.

WHAT DR. TINKER THINKS OF THE NEW HOFFMAN FRAME.

Friend Root:—I believe you Medina folks are upon the right track in sticking to the L. frame, and not advocating a closed-end frame. As you now have it, it is simply a fixing and spacing device to keep the L. frames in place. I do not believe that there is any form of closed-end frame that will ever become popular.

New Philadel'a, O., Feb. 4. G. L. Tinker.

THE NON-BURR-COMB FRAMES.

Ernest is right on frames. I put on 200 Hoffmans last year, and they are the best; also 400 ⅞ x 1⅛ top-bar frames, and had no burr-combs.

Mt. Pleasant, Tex. G. W. Bristline, M.D.

THE COLORADO STATE BEE-KEEPERS' ASSOCIATION.

A. I. Root was with us when we organized, and helped to make our meeting a success. We shall miss him at our next meeting; but we can rejoice to know that our loss will be *gain* to others, where he may chance to be. Since I first met Mr. Root last November, how often I have wished that this world were full of just such good Christian men! From what little I have heard him say, and from all his writings, it would seem as though he is for ever battling against sin, and doing something for the cause of Christ. J. A. Arbuckle.

Greeley, Colo., Feb. 15.

PROPOLIZING THE HOLES OF PERFORATED ZINC.

I have been very unfortunate this year with my bees; for, though I have not lost any, yet I have not had one spoonful of surplus honey, although excellent gatherings are reported by neighbors not over three miles distant, on the creek low lands. I have had a curious experience, which may make you smile. Owing to the fact, I think, that my range is poor, and my bees, of course, have more time than they know how to use rightly, they have got into the habit of propolizing heavily; and in order to offset that I used this year zinc excluders, but, so far from being a success, I find that all the colonies but one have propolized the holes in the excluders until they are all stopped up. Of course, had they had any honey the case would have been different; but as it is, it looks somewhat comical. I suppose they do it as an amusement or pastime. A. Sion.

Kyle, Texas, Dec. 28.

[Your experience with the perforated zinc has been quite unusual. Has any one else had a similar experince?]

A NOTE TO A. I. ROOT.

I have been greatly interested in "Notes of Travel" from A. I. Root, and wish to enter an earnest wish that he may extend his trip to Florida and thence to Cuba—most especially to Cuba. Tell him not to be in a hurry to return to Medina. The improvement of his health is a matter of great importance to his patrons, as well as to himself and family. I think there are over 10,000 people who will agree with me in the desire to have him prolong his journey so as to give us some interesting notes direct from Florida and Cuba, the lands of flowers and honey. Don't come home till April, A. I. I also hope that Rambler was rescued from drowning in the gulf of California, and that the junior editor of Gleanings did not get a *header* from his bicycle. A. P. Fletcher.

Ludlow, Vt., Dec. 15.

LIGHT BROOD VS. HEAVY BROOD FOUNDATION FOR THE BROOD-CHAMBER.

Friend Root:—I have noticed you rather favor the use of thin foundation for brood-chamber. There certainly is a great difference in locality. We often have a great scarcity of honey the last of May and first of June, and I have been troubled very much by having the thin foundation eaten full of holes, and I believe it will stretch some, even when it is wired, and there will be drone comb drawn out. I would not use thin foundation in brood-chamber if the medium or heavy cost double price; and I never put in foundation without wiring. What use is there in saving a little expense and failing to accomplish one of the objects of using foundation—viz., to prevent drone comb? It can not be too thin for sections. J. F. VAN PETTEN.

Linn, Kan., Jan. 27.

THE M'KINLEY BILL, OR ADULTERATED HONEY AND LOW-PRICED HONEY.

It is almost impossible to sell honey not strictly first class. The McKinley bill has done us incalculable injury; and if something is not done soon to right the wrong done us, profitable bee keeping will be a thing of the past. Why are not steps taken at once by the Bee-keepers' Union to lay the matter before the proper committee of Congress? EMIL J. BAXTER.

Nauvoo, Ill., Feb. 1.

[While the low price of sugar, as provided for in the McKinley bill, may have some effect on the price of honey, it is only slight in comparison with the way some packing-houses are putting up glucosed honey and calling it the pure article. It is quite useless to attribute all unpleasant business phenomona to the McKinley bill; but against these adulterated goods on the market, bee-keepers must rise and do something. We were quite disinclined to believe there was any such disreputable business going on; but facts coming in are opening our eyes somewhat. See editorial comments elsewhere].

Whenever it is a little warm, the bees come out of every hive and mark all over the ends of them as they do in spring, and a large lot of them fall on the snow and die, and I am afraid that I am going to lose them. What shall I do to prevent the slaughter of my bees? I have thought sometimes I would put a wire screen over the entrance, but have been fearful to do so. My hives all stand on the north side of my house, but all face the south. Although they are somewhat shaded with trees and vines, the sun warms them quite readily.

Kent, O., Feb. 2. H. W. DONCASTER.

[Bees are quite apt to fly out and die as you describe. We think nothing serious will come of it unless your hives have bad or poorly ripened stores. If the entrances are shaded the bees would be less liable to fly out. Whatever you do, don't shut the bees in.]

SUCCESS WITH DOOLITTLE'S METHOD OF REARING QUEENS.

We can not see how any one can fail to raise queens by Doolittle's plan. We have had a poor year, and yet we have never tried a colony and failed. We have always raised some cells (on an average nine), and we considered that good. We think the bee-keepers owe brother Doolittle a vote of thanks for what he has given to the bee-keeping world; and he does it in a good way, not claiming all the credit himself. That is what I like about it.

Buffalo, Jan. 17. McKINLEY & CO.

WHY THEY CUT DOWN THE COMBS.

What is the cause of the bees cutting down the combs in the surplus chamber in using queen-excluders for extrateting? What is the remedy? S. F. MILLER.

N. Manchester, Ind., Feb. 2.

[We can suggest no cause unless you have spaced your combs closer than 1⅜ or closer than your custom. The queen-excluders could have no influence on the matter.]

IN WHAT CLASS OF THE ALBANY GRADING WOULD SOUTHERN POPLAR OR TULIP HONEY COME?

I see from the reports of the convention recently held at Albany, that there was adopted a standard of grading honey; and from the way I understand the matter, I think our class of honey is left out. Our honey is mostly from the poplar, or tulip; is of good flavor, and amber in color. We have some honey-dew, but we don't put it on the market. If I have not misconstrued the meaning of the report adopted, I could not tell what class to put my honey in. I should like to have a little more light on the subject. L. B. TOLAN.

Kerrville, Tenn., Feb. 8.

HOW LONG MAY A COLONY LIVE?

The folks here tell me there is a swarm of bees near here that has never swarmed, to their knowledge. Can you tell me the reason why they do not? How long will as warm of bees live? L. OZMUN.

PeEll, Wash., Jan. 15.

[A colony of bees may exist for fifty years or longer. In garrets they have been known to live for many years without swarming. But it should be understood that the individual bees and queens live no longer than the average—the continuance of the colony depending upon the infusion of new blood.]

TWO POOR SEASONS, BUT NOT DISCOURAGED.

I am largely dependent on my bees for an income. We have had two flat failures in succession—*no* honey last year, and only two or three pounds per colony the year before, and a heavy feed-bill to foot; but I am not discouraged, and I think I score a point when I say that we need to keep posted more now than ever.

Monroe, Ia., Jan. 12. J. A. MASH.

GOOD WINTERING.

My bees had a fine flight to-day. They bring in a good deal of pollen. They have a good supply of food—no winter loss. They wintered outdoors in my own hives. Many of my hives have no frames in the lower or brood story. I have a movable rack in the top of the lower story, with spaced joists to fasten strips.

O'Quinn, Texas, Feb. 2. J. C. MELCHER.

A GOOD YIELD FOR INDIAN TERRITORY.

My crop of honey for 1891 was 3650 lbs. from 92 colonies, spring count; 3150 lbs. of comb honey, and 500 lbs. extracted, from unfinished sections. I increased to 105 colonies—an average of 70 lbs. per colony. My best hive yielded 157 lbs., all comb honey. This crop of honey brought me a little over $500. M. HERMAN.

Berwyn, Ind. Ter., Jan. 25.

A GOOD INVESTMENT.

I have had only two years of experience in bee culture, and it has been both a pleasure and profit. I began two years ago with four hives, which cost me ten dollars. They gave me 200 lbs. of nice comb honey, worth $20.00. My increase was two swarms. I could see a net profit in the small purchase of $15.00, so last spring I bought quite a lot of colonies which yielded as well as the first. I now have increased my stock to 104 hives.

W. M. SCRUGGS.

Tracy City, Tenn., Jan. 1, 1892.

SOME HEAVY SHIPMENTS OF HONEY.

Mr. E. R. Root:—Your father desired me to send you a statement of the amount of honey shipped by our association last year. We shipped 157,700 lbs. extracted honey, 189,240 net; 28,600 lbs. comb honey, 20,602 net; eight carloads; two went to New York, the rest to Chicago. J. A. R. IRVINE.

Phœnix, Arizona, Feb. 16.

NOTES OF TRAVEL

FROM A. I. ROOT.

AMONG THE BEE-KEEPERS IN THE MOUNTAINS.

As we were standing on the porch at friend Mercer's, talking about it, what should friend M. see but an ocean steamer? She was to leave at half-past ten, and so we had to hustle. I was told the Methodist minister and wife wanted to meet me, even if for only a very few minutes, so we had a little talk; but I hardly felt satisfied, and it seemed they didn't either, for they came after us down to the wharf. Friend Mercer and his wife had consented to go too, and we four got the minister and his wife on board, sent back word to their friends, and took them with us, just as they were. The Rev. Mr. Pettinger, of Ventura, has a strange history. When he was a young man, during the days of the rebellion, he, with about twenty others, captured a train in the South, and attempted to run it up into our lines. So many freight and other kinds of trains were in the way, however, that they got only about a hundred miles. They were taken, and eight of their number were put to death at once. The remaining twelve or fourteen, with death right before them, went down on their knees and made their peace with God as best they could under such circumstances. At this crisis our government interfered and succeeded in stopping the executions, and friend P. finally made his escape. Well, how did all this "death-bed repentance" turn out? I am *very* glad to say that the most of them lived good pure Christian lives ever after; and friend P., after that experience, gave his life to the ministry. Now, please don't scoff or laugh at this, any of you. These twenty or more young men had volunteered to give their lives in the service of their country. Nay, more: like the man who undertook to blow up the iron-clad gunboat belonging to the South, they volunteered a task that was almost *sure* death. They were men of no ordinary courage and bravery. *Such* men, when they dropped on their knees together, and said, "Lord, have mercy on *me* a sinner," meant, as a rule, what they said, death or no death, and so it turned out. I wonder how often they remember that solemn and *awful* little prayer-meeting. Do they sometimes have a reunion and talk it over? Very likely this printed page will meet the eye of one or more of them, for GLEANINGS is now read further and wider than many of us know. If I am correct, every one of that *fourteen* knelt and prayed. *You*, my friend, have probably, at *some* time in your life, promised God, in a similar way, to be *good* and *true*. Have you kept that promise?

Well, that boat-ride to Santa Barbara was one long to be remembered. For the first time we saw pelicans in their native state. They were so wild, however, it was only by the aid of a glass that we could get a view of their strange "dinner-basket," as some one called it—the appendage, or sack, that hangs from the under side of the bill. The bird is about as large as a good-sized goose, with long wide-spreading wings. We also saw the wonderful marine plant called kelp, or giant seaweed. The root is something like a great onion; and the trunk, with its bushy foliage, is like a great tree. As it grows in water from 12 to 20 feet deep, it is a plant of no small dimensions. As it reaches the surface, long branches, or leaf-stems, extend out in every direction, some of them almost or quite 20 feet long. Thus each plant covers an immense surface. Sometimes the foliage is of a beautiful rich red, not unlike the colors of autumn leaves.

The mayor of Santa Barbara was very sick with the grip, and our time was too limited to reach any of the other bee friends, so we visited the old museum there, and took the cars back. This museum is still kept up, and veritable "monks" of olden time have it in charge. The most of them neither see any one of the outside world, nor are they to be seen. Visitors are permitted to go into one small room, and they can also go into the church. Some of the old paintings in the church are very fine, and probably quite valuable. They would be very helpful in our modern Sunday-schools and Bible-teaching, and perhaps they are used in some similar way—we hope so. I do hope, however, that the idea that any human being can be a better Christian by being kept out of sight, and *away* from humanity, may soon be unknown in any clime. "I pray not that thou shouldest take them out of the world, but that thou shouldest keep them from the evil."

J. G. COREY.

Our older readers will remember the story of the cold-blast smoker, and the part that friend Corey, of Santa Paula, had to do with it. We stayed with him over night, and he gave us many valuable facts in regard to the introduction of Italian bees into California. In 1859 he paid $100 for a single colony, and then carried them *on foot one hundred miles*, and walked on snow-shoes to do it. He made a light case, to hold just combs enough to take bees and stores (only 30 lbs.), and strapped it on his back. As he had been employed by an express company to carry express in this way, he was, as it were, trained for the job. Very likely a bee-keeper's enthusiasm helped him to carry out his scheme. His bees lived, and he sold enough of the increase, the first season, to amount to $600. He tried to buy bees of Mr. Harbison, to get a start, but Mr. H. wanted $150 per colony. Before we find fault with these prices, we must remember what it cost to get bees, before there were any railroads. Of course, bee-keepers had a bonanza for a while, raising queens, and increasing, for they could do it almost every month in the year, if they wanted to.

Santa Paula is the oil city of Ventura County. The oil comes from the mountains in pipes, and is here refined. As a consequence they have immense tanks and quite extensive buildings, with the necessary refining machinery. They have just commenced the manufacture of printing-ink, from lampblack and oil, both made from the products of the refineries. Here I for the first time saw a gas-engine, run by gasoline. A certain amount of gas, generated from gasoline, is exploded inside the cylinder, and this gives the power. A small engine was running a machine-shop and other machinery. No governor was used, more than a very heavy fly-wheel, to equalize the force given out by each explosion.

From Fillmore station we reach the bee-ranch of friend McIntyre, that has been recently illustrated and described on these pages. It reminded me again and again of T. B. Terry, while I looked over the ranch and talked with our enterprising friend. Like Terry, and like H. A. March, he pays for every thing as he goes along; and if he can't pay for it, he doesn't have it. He owes nobody, and has something ahead to enable him to grasp good chances when they come his way. Many of the bee-men of California can not have their bees and their families in the same place, and this is indeed a serious drawback. The best places for bees are away back in the mountains, where there are no schools for the children, and where their wives are so far from neighbors and from society it is not pleasant for them. Friend M., however, got his ground *before* the fruit-men; and if they do come into his neighborhood, they can not very well presume to drive him out. Besides, he is a fruit-man himself, and he has orange-trees that he estimates will give him $10 per tree in fruit this year. He also raises young orange-trees. These, when budded, bring from 50 cents to $1.50 each. Three years ago I was absolutely astonished at the prices paid for these trees; and although thousands upon thousands have been raised, the price for good trees remains much the same. It is the old story over again. Friend M. gets wonderful results from only a small part of an acre of seedling orange-trees. His neighbors, seeing how he is making money at it, try to do the same thing themselves, but they have bad luck — the trees die, etc. You see, he prepares the ground so thoroughly, and watches the trees so closely, they *can't* die. The great mass of humanity *will not* pay the price (in diligence and attention) of success. Reader, are *you* letting property go to waste in just this way? May be your wife or your mother can point out just *where* it is. I saw the little water-motor that does their washing, and which is to carry the honey-extractor the coming season. Then friend M. took us up into the canyon, where the oil-wells are located that furnish a part of the oil for the pipe-line that leads to Santa Paula. The wells in California are mostly located up in the mountains, and the oil comes from a peculiar oil-bearing rock. While the quantity is not equal to the wells of the East, it is found nearer the surface, few of the wells being more than 500 to 600 feet deep. We found a single engine pumping four wells, and one engineer looking after all. This engine gives a vibration to something like an old-fashioned horsepower. Each arm works a wire leading to one of the distant wells. Each well has two wires; and these two wires, one and then the other, pulling alternately, work a walking-beam that does the pumping. The tools for drilling are exactly like those used in the East; and, in fact, I found both men and tools had been brought from Pennsylvania. They seemed quite glad to meet visitors, and quite willing to talk; and I do not wonder that they sometimes get lonely away up among these rocky fastnesses. We next went away up into another canyon to a wild, fearful-looking place called the Devil's Gate. Rocks, all the way from the size of an egg up to a fair-sized meeting-house, were so thick in the bed of the mountain stream that it was really frightful climbing up among them. Lest we might indulge in reckless leaping from one to the other, friend M. showed where a man slipped and fell, a few years ago, and lost his life. As no one could find his friends or relatives, nor even his name, for that matter, he was buried on a little bank beneath a branching live-oak. The stones, big and little, have been tumbled and rolled by the water for so many ages that most of them are beautifully rounded and polished; hence it is all the more risky clambering among them. In places the water comes down so steep that it is really a succession of rapids. The water of these mountain streams is usually beautifully clear, pure, and cool; and although I indulge again and again in copious draughts, it never harms me so long as I am exercising in the mountains. Mrs. Root followed as long as her strength held out, and then she rested "under the shadow of a rock" until we came back; but, *didn't* we do justice to Mrs. McIntyre's good bread, and table *full* of good things when we got back!

After dinner our host took us over to see his neighbor, "Tommy Irondale." His name is *Arundel;* but the bee-men think the former is easier to remember and pronounce, and, possibly, a little more stylish. Friend A., as some of you may remember, has solved the problem of being with his wife and children by locating his apiary away up in the mountains where no fruit-men will be likely to want to locate. He has made a road up through the canyon, at his own expense, that is so winding (both up and down as well as sidewise) that Mrs. Root said, just before Mr. McIntyre crossed the stream with his horse and buggy the *eleventh* time:

"If Mr. Irondale had asked *me* to become his wife, with a view of living away up here, I think I should have said 'no' very decidedly."

Now, she did not expect me tell this, of course; but when we all got around the breakfast-table it occurred to me that it was too good to keep, and so I told it, even if Mr. A. and Mrs. Root did look a good deal confused. Well, it helped us all to become acquainted, any way; and when I announced at dinner, that, after Mrs. Root had seen the wonderful view of the valley from the fields above the house, she had changed her mind, and concluded she would not have said "no" after all, she accused me of willful and deliberate false statements. Now, she certainly *did* say she "wouldn't mind living up there *very* much, after all;" and I am going to leave it to the readers of GLEANINGS to say whether it doesn't amount to the same thing.

Friend A. has certainly a very pretty farm up there in the mountain-tops, and his horses seem to have learned the knack of moving great loads either up or down very steep places. The children (five in number) certainly do have a long way to go to school; but, my dear friend, look about you and see if the greatest men have not, as a *rule*, lived out in the country several miles from school. I wanted to add, right here, that *I* lived two miles and a half from the schoolhouse; but Mrs. Root declares *most positively* that I must not say a word about it. You see, she is "sort of" looking after me since I have been sick. Mrs. Root and I decided that Mrs. McIntyre made about the *best* bread in the world; but after we climbed the mountains, and went up the canyon to the falls, we began to think that Mrs. Arundel was fully her equal; and when I began to try to express it, her husband, in his own quaint, comic way, said:

"Lives there a man with soul so dead
Who never to himself hath said,
This is my own, my dear wife's bread?"

I suppose most of you know that the bee-men of our land are, as a rule, a little brighter, more go-ahead, and more respectable than the average men of other callings; but of late I am impressed with the fact that bee-keepers' *wives* are capable of standing right up side by side with their husbands. I presume it has been the case for some time back; but, like many other things, we hadn't found it out. Friend McIntyre placed us in position at the falls, "took hold of the crank" himself, and in due time I hope to present you with a Kodak view of the whole thing. By the way, friend M. told his wife he would be back that night; but it got so awful dark before his patient horse had got us there up the mountain, he decided to stay for supper. After supper the moon came up; but there was so much visiting to do that he did not get away; and when he carried us back to the station next day it was afternoon. Mrs. Root was worried for fear that his wife would be uneasy. We got a pleasant letter a day or two after, in which he said his wife didn't worry a bit, for she gave him the credit of "having sense enough to take care of himself."

From Fillmore we went to Piru Station. I wanted to take Mrs. Root up the Piru Valley, for two reasons: First, I wanted to have her see my good friends the Reasoners; and I wanted, also, to drive through David Cook's ranch of 13,000 acres. I didn't know any one in Piru, and there wasn't a livery-stable there. I told Mrs. Root to sit down in the shade and I would hunt up a vehicle. The station agent said he thought I could get one of a Spaniard just over the way. I went to his house, but the young lady I found there only smiled, and signified that she could not talk our language. I thought if she could *smile* in English she could certainly talk it a little; but I had to give it up. Then I found her father; but he couldn't talk English either, so he called his boy to act as interpreter. It was real fun for me to hear the boy's plain, clear English translation of the musical and somewhat romantic Spanish. The Spanish people have always been interesting to me, and they were doubly so that day. I got the directions, or at least thought I did, and started off. Pretty soon something else interesting took my attention, and I lost my way. Did you never notice how weird and strange things look when you are lost? Well, they look doubly so in California. I finally got into a very pretty garden, and found a man cultivating. I told him what I wanted, and he soon rigged me out. Then we talked something like this:

"My friend, I am an entire stranger here, and how do you know I won't run off with your horse and buggy?"

He didn't say much, but I thought he looked as if my question was certainly a reasonable one. It just then occurred to me that it was getting late, and Mrs. Root must be wondering where I was. Just then I espied some bee-hives piled up against a barn.

"If that man over there is a bee-keeper I think he has heard of me and can convince you that I am whom I claim to be—A. I. Root, of Ohio."

You ought to have seen the look of pleasure as he came up to me and put out his hand.

"Mr. Root, it is a great pleasure to me to see one whom I have often longed to see, but certainly never expected to see at my own home."

"Why, how should you, who are not a bee-keeper, know of me?"

"Oh! our pastor, Mr. Pettinger, loaned me a lot of your journals."

"Mr. Pettinger! oh! that reminds me he told me I must be sure to hunt up a man in Piru who raises strawberries all winter. Does he live anywhere near you?"

"Yes, sir, and I am the man; and as you will need to hurry if you go to Mr. Reasoner's and back before train time, I will get your horse ready. While I am doing so, go right out there and help yourself to the berries. If you improve the time you can get back here at six, and we will give you and your wife some strawberries and cream for supper."

Did you ever! We have the Bible promise that "all things shall work together for good to those that love God," and it does seem as if it had been verified over and over since I have been away from home. I do not mean to boast—you know I do not; but it does seem as if my poor feeble exhortations had been blessed, oh so *much* more than any one could have any right to expect! Friend Pettinger took GLEANINGS when he kept no bees, because it taught righteousness as well as bees; and for the same reason he loaned them to one of his flock who loved God and loved flowers as well as strawberries. And here, right before my eyes, was the fruit of it. I ate a good many berries, and then remembered her, and hastily gathered a few in my hands to surprise her. You can't think how delicious they were after my long tramp that hot, dusty (*January*) day. I put the berries on the seat, and drove out into the main road. Then I looked for the depot, but none was in sight. A railroad *depot* is certainly a big thing to lose; but it was certainly gone, and my wife with it; the sun was declining, too, and we had six miles to drive (up a mountain canyon part of the way) and back again. In despair I appealed to some schoolboys, and they told me which way to drive. How could I ever have gotten so far without knowing it? When I gave Mrs. Root the berries she said she watched me across the fields until I vanished away off in the distance. It really seemed too bad to say "how do you do?" and "good-by" in almost the same breath to such nice people as Mr. Reasoner's; but there was no help for it. Mrs. Root was very anxious to know the name of our good horse that took us along so fast; and when Mr. Reasoner's girls caught sight of him they told us very quickly, for they knew "John," and John showed by his looks and actions that he knew them too; and then it transpired that the Pettingers, Reasoners, and Lentons were *all* good friends, not only because they all belong to the same church, but because they love God and his gifts. "*Blest* be the tie that binds." Mr. Lenton succeeds in having fine strawberries all winter, and in getting a good price for them, in exactly the same way Terry, March, McIntyre, and all these others I have been telling you of do it. They study out the required conditions, and then go to work with all their brain and muscle to secure these conditions. Mr. S. Lenton, of Piru, Ventura Co., Cal., is a florist; but his specialty is just one particular flower, the carnation. In fact, he has a circular, or price list, of new seedling carnations—nothing else. He gave Mrs. Root a bouquet of these that were just wonderful.

What would you think to see "pinks" as large as roses? In his circular he mentions them "three and four inches in diameter." I believe the very large ones are inclined to burst. Now, then, if you are an admirer of pinks I have perhaps done you a service, as well as one to friend L. There is quite a pretty family of them, both boys and girls; and as one boy has a Kodak, and his sister paints in colors, I do not see why our friend should not have his favorite flowers illustrated.

It was dark when we drove into the town of Piru, and we were in another dilemma. I did not take any more "landmarks" when I left Mr. Lenton's than I did when I left the depot. It was almost six, and the strawberries and cream were doubtless ready and waiting. Finally Sue (that's Mrs. Root) suggested that "John" knew where he lived, and so I gave him a loose rein. He seemed a little surprised at first, then seemed to take in the state of affairs; and didn't he just "fly" through the streets! Sometimes he seemed a little undecided, looking up this way and that, with his ears pricked up; and he made so many turns we really began to fear that he like ourselves did not know where he was going; and when he went right past the place which *I* thought was right, we felt more troubled. Finally, however, he wheeled suddenly into the well-known gap in the beautiful evergreen fence, and there we were in good time, right in the midst of friends who were waiting for us. Sue persisted in thinking we must be intruding; but when she found that these good people were, like herself, from "Merrie England," and not very long ago either, it was almost like a family reunion.

And now about David Cook's ranch that I described three years ago. Well, many of the acres and acres of fruit are doing finely, and some fair crops have been harvested already; but it transpired that a good deal of it was planted on ground not suited for it, and some kinds of trees have, I believe, been dug up, and something more suitable put in their place. Large numbers of men and teams are still at work; and the very pretty town and station, with its school and church, are the result of his venture. I feel quite sure that most of such schemes, started *at once*, on such a large scale, *must* turn out a mistake,—much of it. Try a little patch first; then an acre; then five acres; and, if you make a success each season, then it may do to put thirty or forty acres into one crop; but even so fast is risky. Because your *neighbor* has succeeded, it is by no means sure that *you* will succeed. Look about you and see if I am not right. Another thing, don't go and raise a great lot of any thing until you know just where you are going to sell it, and what you will probably get for it. Again, look out that the expense of starting does not eat up all the profits for years to come. A brother of mine went into pigs largely, and made a success of it the first year, to all appearances; but he has a great deal invested in pens that are of little or no value unless he continues in the business. Another thing, his pigs, without a close supervision that he and his family feel they can not undertake another year, are a great nuisance to the neighbors. Of course he could, at great expense, make a pig-proof fence around his ranch; but the business would not warrant this. I suggested making a good fence around smaller limits; but he says experience and all the swine-journals say this will not do. When he started he very wisely got the books and journals pertaining to the industry. These class-journals, if well studied, will save one from useless and expensive mistakes.

Our friend J. J. Cole, of Tropico, near Los Angeles, came here about three years ago. He is the man who bought an apiary where they run water down from the mountain in cane fish-poles. I mentioned it three years ago. Friend Cole went in pretty heavy on the start; but he has had one good season in three years, and this paid him back all he had invested. One part of his apiary is made up of bees that came to him. Last season he secured 32 such; and the year before, 37. This seems astounding, and it indicates that vast numbers of bees must be domiciled in the rocks, trees, ground, and bushes, away back in the great unused fields for honey, in the inaccessible mountains. Friend Corey showed me quite a respectable apiary made up of bees his wife had caught right there in town. They are not only quite plentiful in the swarming season, but in the fall, after a poor year, it seems a good many after-swarms are starved out, for friend Cole got most of his during the months of August and September. Our good honest friend told in the convention of how many bees had come to him and gone into empty hives in his apiary, and the number was so great that our good friend Prof. Cook (not being acquainted with California) created a good deal of merriment by asking whether these bees came to him in the "*night*" or in the "*daytime*."

Mrs. Root says if I am to start a bee-ranch in California it must be at Tropico. Her principal reason is, they have soft spring water, brought down from the mountain. At home we always have cistern water to wash with, *of course;* but here such a thing as a cistern is unknown; and, no matter how hard the water is from the waterworks, everybody uses it for every thing. I have seen only one cistern in the State, and it belongs to my brother. He catches water enough in the winter to last him all summer, and they have one orange-tree full of fruit, irrigated entirely from this cistern.

Friend Cole contributes a tobacco experience. He lost his appetite, and could not eat, either breakfast or supper. Pretty soon he could not eat at *dinner* time either. It was right during the busy time with his bees, and he was fast breaking down. His son's wife, with whom he stayed when working with the bees, worried because she feared her *cooking* was not equal to that of her mother-in-law. Finally a Christian woman, one of the W. C. T. U., I think, suggested that the whole trouble was *tobacco*. C. is a man of sense, and, instead of getting mad because some one told him the plain truth, he *tried* it. Presto! His appetite came back, he fleshed up, and now he is getting *young* again. He said it was a hard fight; but when it was as plain as the nose on a man's face, who wouldn't fight the demon? My own father had a similar experience. He had his youth renewed, after he had used tobacco for more than than thirty years. Now, I wish I could leave my tobacco-story right here; but I am afraid I can not, if I am fair and truthful. Friend C. gave up smoking—chopped it right square off; but he chews yet—"just a leetle." He says he *can* quit that too if he has a mind to, but yet he doesn't. He is a Methodist, one of the good old-fashioned kind, and he knows he *ought* to quit. Shall we not pray that the Holy Spirit from on high may give him grace to shoulder this cross? He is the man, you may remember, who told the company who wanted his farm, to build on it a great distillery, that they couldn't have it for any amount of money, even if he were poor and badly in debt; and when they urged and tried to tempt him he said, "Get thee behind me, Satan," and he stuck to it, even though it cost him something like a *couple of thousand*. He was a *hero* when it came to "*conscience or money;*" but a little pinch of tobacco is a stumbling-block.

GLEANINGS IN BEE CULTURE

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In the multitude of counselors there is safety.—Pr. 11: 14.

At last accounts Mr. and Mrs. A. I. Root were in New Orleans, and expected to visit Florida. They think it will be impossible for them to go to Cuba. At New Orleans Mr. Root had one or two slight attacks of chills; but we hope the trouble will not be permanent.

A LARGE amount of correspondence which we are unable to print furnishes plenty of evidence to show that sealed covers, no upward ventilation, and large entrances, are essentials for successful outdoor wintering. Few if any argue for absorbents and upward ventilation. The fact that the straws all blow the same way is suggestive.

IT has been rumored, though we are unable to get hold of the exact information, that a certain Canadian association of bee-keepers declared that the Porter bee-escape was objectionable in that it tore the wings of the bees. We can hardly see how this is possible, but yet we should like information, either from the Canadians or any one else in a position to know.

A FEW days ago a letter came to hand, bringing the sad intelligence of the death of Mr. Earle Clickinger, the well-know commission merchant of Columbus. As, no doubt, many bee-keepers have sent him consignments of honey, we are requested to announce that all his affairs will be satisfactorily settled as soon as possible. Mr. Clickinger died quite suddenly when away from home on a business-trip.

As evidence of the way fixed frames are being selected, our superintendent, Mr. Warner, informs us that we are now turning out 5000 Hoffman frames every day. This rate has been maintained ever since the first of January. Prior to that we were making 3000 a day, and the demand seems to be increasing. At present, fixed frames are outselling the loose ones ten to one. This shows that bee-keepers who have tested the fixed frames for a year or so back like them.

JUST as we received notice of the discontinuance of friend Andreu's enterprising sheet, Vol. I. No. 1 of *El Colmenero Espanol* (The Spanish Apiary) comes to our table, published by Enrique de Mercader-Belloch, at Barcelona, Spain. It has 16 pages the size of these, very nicely printed. As indicative of the hold that modern apiculture has already obtained on the minds of the Spanish people, we quote the following:

> Bees should be kept only in modern or frame hives—the only ones which, according to our mind, should be employed in the production of honey.

The appearance of this journal is a sign in the right direction, and we are glad to place it on our list of valued exchanges.

WE had a very pleasant visit from Dr. C. C. Miller. On the day of his arrival, Feb. 12, we were just recovering from a severe attack of earache and grip, and fortunately he came just in time to help us out in our editorial work just as the last forms of the Feburary number were nearly ready to go to press. He was very much pleased and interested in some of the new developemnts at the Home of the Honey-bees, and especially admired the principle of the Cowan extractor. While here he suggested a new wrinkle. He showed how we could make this machine *extract both sides of the combs without stopping the extractor*—no, not even so much as reversing the crank. If he was awkward with the Daisy foundation-fastener (see Straws, this issue), he was very expert in manipulating the Cowan reversible extractor on the new idea. He was the first to discover it, so far as we know, and we will let him tell how it is done, himself.

A QUEEN-BREEDER asks our advice as to whether it will pay him to advertise tested queens at $1.25 and untested at $1.00. It is impossible to answer this question by yes or no, as the success or failure of such advertising depends upon several conditions. The queen-breeder who advertises queens must advertise continuously in order that the bee-keeping public may become familiar with his name; and he must do exactly as he agrees. Of all things most ruinous to a queen-breeder's business, it is to take the cash for an order, and then send a queen a month or even longer after the queen is ordered. When a bee-keeper incloses cash for a queen during the later spring and early summer months, he has a good right to expect her to be sent by return mail. When a man suddenly discovers a hive is queenless, it may be a great loss to him to have to wait a week and sometimes a month for his queen. If any of our advertisers delay their customers in this way we should like to be informed of it.

WE are able to publish only a few of the many articles sent in on the subject of bounty versus no bounty on honey. We should be glad to give insertion to them all if we had the space, but we fear so many might be wearisome to the readers. Perhaps we can give the gist of the whole discussion in a nutshell. The decision seems to be almost unanimous that a bounty on honey is not desirable, even if feasible; that bounties in general at best favor only a few at the expense of the masses. One correspondent says, "A bounty on honey is all nonsense, and you just waste ink and labor in having it discussed in GLEANINGS. There are a hundred industries needing and deserving a bounty just as much as honey." The correspondent does not add, but we suppose it is implied, that, if we grant a bounty on every thing, our people would be in a bad plight indeed. For the present, at least, we shall have to cut off all further discussion on the subject, as we are sure that the few articles we have already given sufficiently indicate the general feeling.

IT has been darkly hinted by one or two correspondents that we have rejected communications, either because they were at variance with some of our "pet ideas," or because there was a prospect of their cutting off our bread and butter. Editors may be biased in their opinions; we may be, but we certainly do not desire or intend to be. We have often taken pains to give special prominence to certain sides of discussion that were contrary to our beliefs and experience; and we think that the pages of our journal will carry us out in this assertion. If we suppress communications because they happen to differ from our views, we are unconscious of it. As we said in the *Bee-keepers' Review*, we say now, "sail into" the editor if you think he is giving currency to or is encouraging wrong ideas; but do it kindly. We desire above all things that GLEANINGS shall be unbiased and fair on all subjects. We are sometimes obliged to leave out matter simply because of some peculiar condition or circumstance. One of these conditions may be lack of room; and then there may be a dozen or so good articles, all discussing the same phase of the subject. Manifestly, it would be unnecessary to publish them all.

In the *Canadian Bee Journal* of Feb. 9, Mr. R. McKnight replies to our editorial regarding the matter of non-affiliation on the part of the O. B. K. A. with the N. A. B. K. A. We are pleased to observe a friendly and courteous spirit on the part of Mr. McKnight; for, as he truly says, "The friction is between bodies corporate, and not between individuals." If we can not agree to agree, let us agree to disagree as brothers. Mr. M. adds, further, that he hopes the N. A. B. K. A. is elastic enough to allow him to still remain a member, and we think it surely is. In the same way, we have no doubt that the O. B. K. A. is elastic enough to admit to membership a bee-keeper from the United States. We firmly believe that further discussion is ill advised and unwise, and that it is best to let the matter drop.

SUGAR-FED COMB HONEY.

In the *Bee-keepers' Review*, page 318, Dec. 10, appears an article from Emerson E. Hasty. Said article raises a question as to whether we may not, in poor seasons, when natural sources fail us, feed sugar syrup to our bees to produce comb honey; and while Mr. Hasty does not for a moment advise selling such honey as pure clover or pure basswood, he thinks that, *if* sugar-fed comb honey can be produced at a profit, and sold for what *it is*—that is, cane-sugar honey, there is no special harm done. So far we agree with Mr. Hasty. But the great trouble is, not all the world is as conscientious and honest as is our friend from Richards, Ohio. If such were the case there would be no danger in raising the question. But, unfortunately, there are bad men in the world who might take the knowledge gained by Mr. Hasty's article and make a bad use of it. And, again, if bee-keepers were to buy sugar syrup, stating that they were to use it to feed for comb honey, the newspapers would pretty likely get hold of it and herald forth that bee-keepers were making a general practice of this sort of thing, and were selling it for pure comb honey, even if the bee-keeper *intended* to sell it for cane-sugar comb honey. It is a good maxim to avoid the appearance of evil, so long as we have nothing definite to prove that sugar-cane comb honey can be produced at a profit, and we somewhat question it.* It is not always best to have truth come out. For instance, it might be argued that it would be very unwise for any periodical to publish how to make dynamite bombs, giving all the necessary details for their manufacture. If the people of the world were all honest, no harm would result from the publication of such matter; but, unfortunately, again, there are evil men who might, with the knowledge thus so easily obtained, do great mischief.

While we are compelled to believe the publication of the article relative to sugar-cane comb honey was a mistake, we do not for a moment question the motives or intentions, either of Mr. Hasty or our friend the editor, Mr. Hutchinson. In fact, *no one* can question the intentions of either; and perhaps, under the circumstances, the less said about it the better. The article may do more harm since it appears in a first-class, neatly printed and well-edited bee-journal—one that does honor and credit to our bee-literature, and because the writer, Mr. Hasty, stands high as a contributor and correspondent—one whose writings are invariably spiced with good humor and wit. For instance, right before us is a letter from a subscriber, who, having read Mr. Hasty's article, proposes in all seriousness to feed his bees cane sugar to secure comb honey, as the natural sources have failed him for several years. He does not say whether he will sell it for what it is or for strictly bee-comb honey. This same writer says further, that heretofore he regarded the practice as unprofitable; but if it can be made to pay, as hinted by Mr. Hasty, he is going to "make" that kind of honey. This man is honest enough to admit it; but are there not some others who would produce the cane-sugar honey and keep still about it?

ADULTERATING EXTRACTED HONEY, AND TO WHAT EXTENT THE PRACTICE EXISTS.

For some weeks back we have been investigating to what extent extracted honey is being adulterated on the markets; and while we were loth to believe at first that it was done to any appreciable extent, we are compelled to acknowledge, from the evidence in hand, that there is probably at least some of it done by a few disreputable packing-houses; but we have no reason to suppose that it is practiced to the extent of "hundreds of tons," as first announced. The shameful thing about it is, that one or two wholesale grocery establishments (see Baldridge's article elsewhere) are offering two lines of goods—one adulterated and the other pure. The traveling salesman will offer to the trade adulterated honey, put up in glass packages, at a price considerably below what the same package can be supplied filled with the pure article, and the groceryman is given his choice. They both *look* equally showy, and both taste well, and some grocerymen will buy the adulterated because it is cheaper, and sell it for "strictly pure." Fortunately this barefaced dishonesty is not practiced to any great extent, because the traveling men themselves "give the whole thing away."

There is another class of mixers who sell only adulterated goods, and yet label them "Strictly Pure Clover Honey." We have samples of the latter goods sent us, and the glucose flavor is unmistakable and prominent, and Dr. Miller; who was with us agrees. The packages in question were made up of jelly-tumblers and bottles. Each package contained a small piece of genuine broken-comb honey, and around it is poured a glucose mixture. By way of parenthesis right here, it may be well to warn the public against buying jars of honey (?) containing a piece of comb in it. The latter is probably only a snare and a delusion, and is intended to give the package the *appearance* of honesty. We do not believe there is a single bee-keeper who puts up broken-comb honey in this style—that is, we mean pure honey without any glucose adulteration; and we would warn consumers against buying honey (?) containing a piece of comb labeled with the name of some big city packing-house.

Now, Gleanings does not propose to stand idly by and do nothing about it. Just at present it is not pertinent or wise to make known our plans. But before we get through we will try hard to make some one squirm.

Now, it may perhaps seem a little unwise to come out with the knowledge that extracted honey may be adulterated. Heretofore we had not believed (and the evidence at hand was not sufficient to convince us) that extracted honey could be adulterated at a profit. If it is adulterated, and it surely is to some extent, it is unwise to keep still and let it go on, for that would only give license to evil men, and allow the evil to spread.

---

* Mr. A. F. Unterkircher (see page 101, Gleanings for '86) in feeding back to produce comb honey, out of 3500 lbs. so fed received only 1250 lbs. of fed comb honey. At this rate, sugar-fed comb honey would not pay at 11 cts. per lb.

SPECIAL NOTICES.

PEAVINE, OR MAMMOTH, CLOVER SEED.

The price of this seed has been on the upward move of late. Next to alsike and white clover the bees gather honey from this variety most readily. We have some choice seed, in limited quantity, as follows: 1 lb., 15 c.; 1 peck, $1.90; ½ bushel, $3.60; 1 bushel, $7.00; 2 bushels, $13.00, bags included. By mail, 9 c. per lb. extra.

PLANET JR. GARDEN IMPLEMENTS.

The season for gardening operations is at hand, and these operations are greatly facilitated by the proper tools. The Planet Jr. garden implements have a world-wide reputation. If you are interested in examining the neat and tasty price list of these tools, we shall be pleased to mail you one, inclosing our special net-price sheet offering the tools at considerably less than list prices. Mailed free on request.

BEESWAX WANTED.

The market in beeswax has toned up quite a little, so that we can offer, till further notice, 27 c per lb. cash, 30 c in trade, for average wax delivered here. Be sure to put your name and address in or on the package when you send us wax, for we are daily receiving it; and unless you are careful to mark your box it gives considerable annoyance. We have had two or three such cases lately. Our selling price will be 32 cents for average, 35 for selected. No change to note in the price of comb foundation.

SWEET CLOVER—MELILOTUS ALBA.

Since the appearance of the article on this variety of clover ,found on page 91, the writer has received numerous inquiries in regard to seed, and writes requesting that we notify our readers that he has no seed to sell, but that we can furnish it. This we are glad to do. It is found in our seed list, quoted as follows: 18 c per lb.; 10 lbs., $1.50; 100 lbs., $12.00. By mail, 9 c per lb. extra. This reminds me that any of our readers interested in vegetable-garden seeds, and plants strawberry-plants, honey-plant seeds, etc., can have our 16-page seed catalogue for a request on a postal giving your address.

COWAN RAPID HONEY-EXTRACTOR.

This machine was illustrated and described in the Jan. 15th number, and is also included in our March 1st catalogue, which is nearly ready for mailing. From tests made we are able to reverse the baskets in this extractor about as rapidly and with as great ease as the Stanley automatic, even though it is not automatic. The reason is, that you do not have to bring the revolving gear to a standstill, and then turn the other way, but you simply slow up the motion sufficiently to throw the baskets over with one hand, one after the other, while you keep the other hand on the crank. It is equipped with the new vertical gear, with crank at side of can, and for two L. frames the price is $12.00. A larger size, with baskets 12 inches wide, for deeper fames or two shallow frames in each basket, $14.00.

THE NEW VERTICAL GEAR FOR EXTRACTORS.

Since the article in the Jan. 15th issue, describing this gear, we have had a number of inquiries in regard to it. We put it on any of our regular extractors for $1.00 each extra. It can not be attached to extractors already sent out, because the top part of the revolving basket stands too high. We are getting up a gear with a humpback cross-arm that can be attached to the old extractors, and will give better wear than the old gear. We hope to tell you more of this in our next issue. We can furnish the vertical gear with cross-arm, as shown in Jan. 15th issue, for 17, 20, 22, 28, and 30 inch cans; 17 and 20 inch, $1.50 each; 22 inch, $2.00; 28 and 30 inch, $2.50 each.

ALSIKE CLOVER SEED.

On page 165 of this number will be found an interesting and instructive article on alsike clover—when and how to sow, and the profits derived, both from seed and the honey produced. Agriculturists are learning of its value as a paying crop to raise, but it looks as if they were very slow in doing so. We have known a number of bee-keepers who interested themselves in explaining and proving to their neighbors the merits of alsike, and furnishing them seed, sometimes at cost, sometimes for less, because of the improved pasturage for his bees. As a rule he has been abundantly repaid for his trouble. I don't remember a time in years when seed has been as high as it has this year; but this should not stand in the way of its being used. The seed is so fine that it does not require more than half the number of pounds per acre than it does of common red or medium clover. We have an extra nice lot of seed which we furnish as follows: By mail, 1 lb., 35 c; 3 lbs. for $1.00. By freight or express, at your expense, 1 lb., 25 c; 4 lbs., $1.00; 1 peck, $2.80; ½ bushel, $5.40; 1 bushel, $10.50; 2 bushels or over, $10.00 per bushel. Bags included in such case.

MAPLE SUGAR AND SYRUP.

The maple-sugar season is here, and the woods are aglow with the fires of the sugar-camp. The toilers in this industry are wending their way from tree to tree, gathering nature's sweet, and reducing it to those delicious sweets that surpass honey itself. Ohio is the home of the maple, and our State has laws so strict that it makes it a serious matter to adulterate the products of the maple-sugar camp; and those within the State who are found daring enough for this nefarious business are few and far between, if, indeed, they exist at all. As a consequence, Ohio syrup and sugar have a national reputation for purity, and, as a further consequence, our sales have greatly increased the past year. The sugar bounty does not apply to maple syrup, and to sugar it is in such shape as to be of no benefit to the ordinary producer. A nice article of syrup brings just as much now since the reduction in price of other sugars as before, and there is not much change in the price of maple sugar. These products have a market of their own, just as much as honey, and a fancy article will bring just as good a price in one as in the other.

There are many thousands of gallons of syrup produced within a radius of 20 miles of Medina, besides large quantities of sugar. To help these producers we have for years been the medium for finding a market for a large part of their product. The first run is just coming to market as this goes to press; and in from one to three weeks we shall, no doubt, be able to supply all demands at the following prices:

Choice syrup in 1-gallon cans, $1.20 per gallon; 10 gallons, $10 50; 20 gallons or more, $1.00 per gallon, well packed, and delivered on board cars here. Maple sugar we offer in three grades: No. 1, extra, at 9c per lb.; No. 2, good, at 8c; and No. 3, fair, at 7c per lb. In 50-lb. lots, ½c per lb. less. In barrel lots of about 300 lbs., 1c per lb. less. Sugar is in cakes of from 2 to 10 lbs. each, mostly 4 to 6 lbs. in a cake.

Maple Sugar and The Sugar-Bush

BY

PROF. A. J. COOK,

AUTHOR OF THE

BEE-KEEPER'S GUIDE, INJURIOUS INSECTS OF MICHIGAN, ETC.

The name of the author is enough of itself to recommend any book to almost any people; but this one on Maple Sugar is written in Prof. Cook's happiest style. It is

PROFUSELY ✶ ILLUSTRATED.

And all the difficult points in regard to making the very best quality of Maple Syrup and Maple Sugar are very fully explained. All recent inventions in apparatus, and methods of making this delicious product of the farm, are fully described.

PRICE: 35 Cts.; by Mail. 38 Cts.

A. I. ROOT, MEDINA, O.

WILL sell my **Barnes Foot-Power Saw** for **$15** cash in advance. Saw in fair running order. Attachments, 1 cut-off saw 6 in. in diameter; 1 rip, 7 in., one 6, one 4; one grooving, 4-in.; 1 emery wheel, 4 in.; 1 cutter-head, ⅜ in.

5d JONAS E. HERSHBERGER,
Grantsville, Garrett Co., Md.

ALWAYS
ON
TOP

PRICES LOW.

Our strain of ITALIANS have reached the top. They are HUMMERS when you want bees for honey. Queens bred for business. Make arrangements to order now, to be delivered when wanted.

BEE SUPPLIES AT WHOLESALE AND RETAIL.

For further information about bee-fixtures, send for circular.

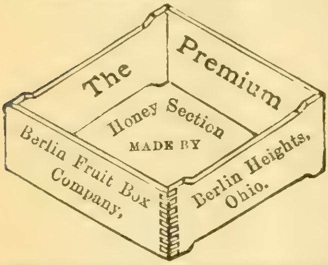
JNO. NEBEL & SON.
4tfdb High Hill, Mo.

Please mention this paper.

POSITIVELY by return mail I will ship warranted purely mated Italian queens at $1 each; tested, $1.50; select tested, yellow to the tip, $2. I guarantee satisfaction, and refer you to A. I. Root, W. Z. Hutchinson, D. A. Jones, or my thousands of customers.

W. H. LAWS, Lavaca, Seb. Co., Ark.

☞In responding to this advertisement mention GLEANINGS



Send for our new price list of Bee supplies and Fruit packages. A liberal discount allowed on winter orders. Address

BERLIN FRUIT BOX CO.,
Berlin Heights
Erie Co.,
Ohio.
1-6db

☞In responding to this advertisement mention GLEANINGS

TEXAS.

Queens by return mail a specialty. Untested, March, April, and May, $1.00 each; six, $5.00; after, 75c each; six, $4.20, or $8.00 per dozen. Discount on larger orders. Contracts made to furnish certain number weekly. The above are the three-banded Italians. I also breed the five-banded strains at above price except tested, of which I will have none till April 15th. A few fine breeders, either race, $5.00. I have changed my postoffice from Farmersville, Texas, to Floyd. Money-order office, Greenville.

JENNIE ATCHLEY,
1tfdb *FLOYD, HUNT CO., TEXAS.*

☞In responding to this advertisement mention GLEANINGS.

My Catalogue of APIARIAN SUPPLIES for 1892 is free; My Pamphlet, "HOW I PRODUCE COMB HONEY," by Mail, 5 cts.

GEO. E. HILTON, Fremont, Mich.

Please mention GLEANINGS. 2-13db

ST. JOE, MO.

We have the latest hive out, and the only full stock of supplies. Write E. T. ABBOTT. 4tfdb

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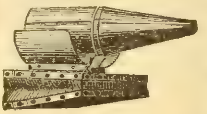
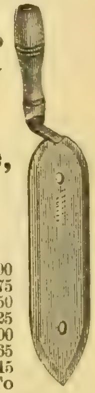
BEST ON EARTH



ELEVEN YEARS WITHOUT A PARALLEL, AND THE STANDARD IN EVERY CIVILIZED COUNTRY.



Bingham & Hetherington

Patent Uncapping-Knife,

Standard Size.

Bingham's Patent Smokers,

Six Sizes and Prices.

Doctor Smoker,	3½	in., postpaid	...$2.00
Conqueror "	3	" "	.. 1.75
Large "	2½	" "	... 1.50
Extra (wide shield)	2	" "	... 1.25
Plain (narrow ")	2	" "	... 1 00
Little Wonder.	1¾	" "	.. 65
Uncapping Knife.....		....	..1 15

Sent promptly on receipt of price. To sell again, send for dozen and half-dozen rates.

Milledgeville, Ill., March 8, 1890.

SIRS:—Smokers received to-day, and count correctly. Am ready for orders. If others feel as I do your trade will boom. Truly, F. A. SNELL.

Vermillion, S. Dak., Feb. 17, 1890.

SIRS:—I consider your smokers the best made for any purpose. I have had 15 years' experience with 300 or 400 swarms of bees, and know whereof I speak.

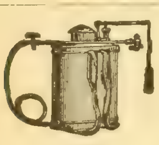
Very truly, R. A. MORGAN.

Sarahsville, Ohio, March 12, 1890.

SIRS:—The smoker I have has done good service since 1883. Yours truly, DANIEL BROTHERS.

Send for descriptive circular and testimonials to

1tfdb BINGHAM & HETHERINGTON, Abronia, Mich.



SPRAY YOUR FRUIT TREES AND VINES

Wormy Fruit and Leaf Blight of Apples, Pears, Cherries, Grape and Potato Rot, Plum Curculia prevented by using EXCELSIOR SPRAYING OUTFITS. PERFECT FRUIT ALWAYS SELLS AT GOOD PRICES. Catalogue showing all injurious insects to Fruits mailed free. Large stock of Fruit Trees, Vines, and Berry Plants at Bottom Prices. Address WM. STAHL, Quincy, Ills.

24-10db

☞In responding to this advertisement mention GLEANINGS.

ROOT'S GOODS FOR THE EAST.

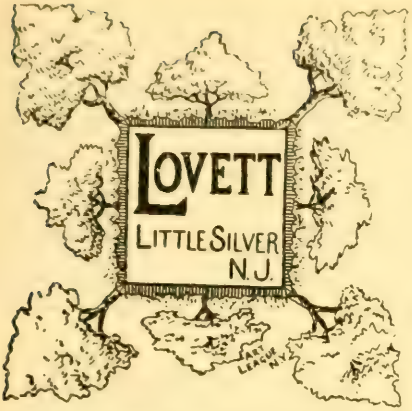
Bee-Keepers of the East should

Bear In Mind that we have established at Syracuse an **Eastern Branch**

where our Bee-keepers' Supplies are kept for sale, and prompt shipment. You can save time and freight by ordering from our Eastern Branch. We have engaged Mr. F. A. Salisbury to take charge of this business, and he will treat you well. He will be pleased to send you a list of goods kept in stock.

Address all orders,

EASTERN BRANCH, F. A. SALISBURY, Agent, Syracuse, N. Y.



TREES and PLANTS that thrive in Northern climates, as well as for Southern. Why not buy direct at half the price usually paid to Tree agents?

Lovett's Guide to Horticulture is issued, of course, with the object of selling goods, but we also bear in mind that the public will not be satisfied to have us blow our own horn unless we take pains to repay them for their trouble in listening.

Hence we have issued this book, which is the most elaborate and complete ever published by any Nursery Establishment in the world. It is finely illustrated and tells all about planting, pruning and care. **Reliable** information fills it from cover to cover. No person interested in the garden and orchard should be without this handsome book. Write for it at once. **It's Free,** or with colored plates ten cents.

Distant Shipments a Specialty.

J. T. LOVETT CO., Little Silver, N. J.

☞In responding to this advertisement mention GLEANINGS.

LOCATION

Is a big *point*, in supplying goods; ours gives you low freight rates. As we sell low, you should have our circular of supplies. 1-18db

I. J. STRINGHAM, 92 BARCLAY ST., N. Y.

Please mention this paper.

ALSIKE.

Now is the time to sow, and during the next two months. We have a good supply of choice seed at the following prices, which are low for the present condition of the market:

1 lb., postpaid, 34c; 3 lbs. for $1.00.
1 lb. with other goods, 25c; 4 lbs. for $1.00.
1 peck (15 lbs.), $2.80; ½ bushel, $5.40.
1 bushel, $10.50; 2 bushels, $20.00.
Bag included in every case.

A. I. ROOT, Medina, O.

$4 or $5

Will buy ONE HIVE OF ITALIAN BEES AND QUEEN. Simplicity Hive and Frame or Hoffman Closed-End Frame and Hive.

JOHN A. THORNTON,
2-7db Lima, Illinois.

Please mention this paper.

A.W.L.
"THE BEST" Everybody Admits.
LIVINGSTON'S TOMATOES
OUR OTHER SEEDS ARE EQUALLY AS RELIABLE
Seed Annual Free, Write For it NOW!
A.W. LIVINGSTON'S SONS,
BOX 273, COLUMBUS, OHIO.

☞In responding to this advertisement mention GLEANINGS.

TEXAS.

Queens by return mail a specialty. Untested, March, April, and May, $1.00 each; six, $5.00; after, 75c each; six, $4.20, or $8.00 per dozen. Discount on larger orders. Contracts made to furnish certain number weekly. The above are the three-banded Italians. I also breed the five-banded strains at above price except tested, of which I will have none till April 15th. A few fine breeders, either race, $5.00. I have changed my postoffice from Farmersville, Texas, to Floyd. Money-order office, Greenville.

JENNIE ATCHLEY,
1tfdb *FLOYD, HUNT CO., TEXAS.*

☞In responding to this advertisement mention GLEANINGS.

J. C. SAYLES,

HARTFORD, WIS.,

MANUFACTURES APIARIAN SUPPLIES OF EVERY DESCRIPTION. CATALOGUE FREE TO ALL. SEND YOUR ADDRESS.

3tfdb Please mention this paper.

Muth's
Honey-Extractor.

Square Glass Honey-Jars,
Tin Buckets, Bee-hives.
Honey-Sections, &c., &c.
Perfection Cold-Blast Smokers.

APPLY TO
CHAS. F. MUTH & SON, Cincinnati, O.

Send 10-ct stamp for "Practical Hints to Bee-keepers."
Please mention this paper.

Wholesale and Retail Manufacturer and Dealer in BEE-KEEPERS' SUPPLIES.

ONE-PIECE SECTIONS A SPECIALTY, AS GOOD AS THE BEST.

Send for catalogue. *W. E. SMITH,*
5tfdb *Successor to Smith & Smith,*
KENTON, HARDIN CO., OHIO.

In writing advertisers please mention this paper

Bee-Hives and Sections

A specialty. Foundation, Smokers, etc., in stock. Send for new list, free.

4tfdb **W. D. SOPER, Jackson, Mich.**

POULTRY. Choice Fowls and Eggs for sale at all times. Finely illustrated circular free. GEER BROS St. Marys, Mo. 21tfdb

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CIRCULARS RECEIVED.

Catalogues have lately been received from the following:
W. H. Laws, Lavaca, Ark.
E. Kretchmer, Red Oak, Ia.
W. D. Soper, Jackson, Mich.
Geer Brothers, St. Mary's, Mo
S. Valentine, Hagerstown, Md.
W. H. Norton, Skowhegan, Me.
P. L. Viallon, Bayou Goula, La.
J. M. Young, Plattsmouth, Neb.
Luther & Horton, Redlands, Cal.
A. A. Weaver, Warrensburg, Mo.
J. Van Deusen & Sons, Sprout Brook, N. Y.
E. L. Goold & Co., Brantford, Ontario, Canada.

The following are from our press:
N. A. Knapp, Rochester, O.
J. D. Kennady, Jordan, Ky.
John S. Reese, Winchester, Ky.
Engh & McPherson, Lochiel, Wis.
A. F. McAdams, Columbus Grove, O.
Plinny Shepardson, Freeport, Wash.

CONVENTION NOTICES.

The sixth semi-annual convention of the Missouri State Bee-keepers' Association will be held at Pertle Springs, Warrensburg, Mo., Apr. 6 and 7, 1892, in the parlors of the Minnewawa Hotel — the finest in Johnson Co. A rate of $1.00 per day has been secured for bee-keepers attending the convention.
W. S. DORN BLASER, Sec., Higginsville, Mo.

The Utah Bee-keepers' Association will hold a convention in this city, April 7th. The organization has every indication of being a decided success this time. J. C. SWANER, Sec.
Salt Lake City.

SPECIAL NOTICES.

STRAWBERRIES.

A friend in Indiana calls attention to "strawberries" in our seed catalogue where the *Sterling* is classed as a *staminate* or perfect-blossom variety. The three kinds last mentioned on our list, Sterling, Bubach, and Haverland are pistillates, or imperfect flowering varieties, and need from one-fourth to one-half their number of staminates such as Jessie or Gandy planted with them to insure a paying crop of fruit.

WHITE DUTCH AND SWEET CLOVER SEED WANTED.

Our stock of white Dutch clover seed is almost exhausted, and sweet-clover seed all gone. If any of our readers have seed of either to sell, you will kindly submit samples at once, stating how much you have, and if possible the price you want for it. We withdraw our published selling prices on white Dutch till we are supplied. It will probably be the same price as alsike. We will bill it as low as we can afford on such orders as we receive.

POULTRY NETTING AND FENCING.

Our special netting and fencing catalogue, with discount sheet, is now ready for mailing. These catalogues are furnished us by the manufacturers, and we have been out of them for some months. Owing to enlargement of the factory, and other causes, we have been delayed in getting the lists, and have several hundred applications that have accumulated for the past few months. If any who have already written for one do not receive it within the next ten days, drop us a postal, with another request. We have no change in price to note, our prices being the same as last year, and given in condensed form on page 51 of our catalogue. We shall be pleased to mail the special list to any on application.

MAPLE SUGAR AND SYRUP.

Since the appearance of the notice of sugar and syrup in last number we have received a good many orders, especially for sugar. We have also had a spell of winter weather, so that very little sugar has been brought in yet by the producers, although we have syrup enough offered to meet all demands. We hope very soon to have plenty of sugar for all orders. In former years we have always had a surplus, and see no reason why we should not have enough for all demands this year. As we have three grades of sugar, and syrup is offered us in about as great variety, we have decided to offer you two grades of this. No. 1 gilt-edge will be $1.20 per gallon; 10 gal., $10.50. No. 2, good quality, $1.00 per gallon; 10 gal., $8.50. What we list here as No. 2 good is liked by some fully as well as the gilt-edge, and by some even better. It is a good ordinary run of syrup, and we can supply you all you want at above figures.

NEW HAMMOND TYPEWRITER FOR $60.00.

We have a new Hammond typewriter that has not done two full days' work, that we offer for sixty dollars. It has the "Universal" keyboard, same arrangement as the Remington. We got the machine expecting to use it in our office because of some superior points that it possesses over other machines. We found on trial, however, that, although the arrangement of the keys is the same, the touch of them is so different that a Remington operator could not write successfully on the Hammond without learning over again. The Remington and other similar machines have the staccato (or piano) finger movement, while the Hammond has the legato (or organ) movement. The Hammond seems to be preferred by clergymen and other professional men who do not use it continuously as we do in a business office. Dr. Miller and G. M. Doolittle both use and prefer the Hammond, and would no doubt tell you that the above offer is a bargain.

A GOOD TIME COMING.

As a rule I do not like to hear people grumble; but there is one kind of grumbling that I am watching and waiting for—yes, I am hungering to hear a little of it. When it comes I expect it to be something along in this line: "What has got into these farming people? They are getting so they charge a body just what they have a mind to, and they know we can not help ourselves. Clover seed that used to be three or four dollars a bushel is now eight and ten; and these bee-keepers that raise alsike want even more. The yellow onion-sets are $7.00 a bushel at wholesale. Wheat and flour are going up constantly, and nobody knows what things are coming to." Well, friends, I have not heard anybody say just that; but in looking over a price list dated March 15, of seeds, etc., I thought it looked something like it. There has been, as you know, a tendency to run away from the farms, and crowd into town; and I fully expect that these people who like real progressive farming are going to have a good time after a little. So don't you be in a hurry to desert the farm where you are now doing even tolerably well. A. I. R.

CLOVER SEED.

Two weeks ago we announced an advance in the price of peavine or mammoth clover seed from $6.00 to $7.00 per bushel. It has since gone up at such a rate that it is worth to-day fully as much as alsike, which we are selling at $10.50, or two bushels for $20.00. Common red or medium clover is also the same price. This ought to stimulate the demand for alsike seed, because it does not require more than half as many pounds of seed to the acre as of the large clovers, because the seed is so fine. You can see from the article on page 165 of last issue that it is fully as valuable for hay, as well as for a paying seed crop. We have a good supply of choice seed at prices last named. We can not fill orders after this date for peavine at less than the price of alsike, unless the market subsides again. You may be sure we will give you the best price we can, consistent with the market as it rules at the time your order comes. Some few are so unreasonable as to insist that we fill orders at the catalogue price printed some time ago, no matter where the market goes or what we have to pay. As a rule, these are the people who do not watch the market and inform themselves of what is going on. When the market is so unsteady as it has been on clover for the past two or three months, there is no printed price list that can keep pace with it; and we distinctly state that prices are subject to change without notice. As we have a good supply of alsike we can maintain present price.

DECLINE IN THE PRICES OF GARDEN SEEDS.

In fixing the prices on our seeds we do not wish to be below other reliable seedsmen, neither do we wish to be above them. When we grow a fine stock with much pains and care, we at once consult offers from various reliable sources, and fix our prices accordingly. If we discover later that some reliable grower has given a better price, of course we must adopt the same price, whether we make or lose in the operation. Therefore we make the following changes in our catalogue for 1892. In taking these prices, please remember they are figured so close that, when seeds are wanted by mail, you must add 1 cent per ounce; 5c per half-pound, or 9c per pound, to cover postage and packing. Peas and beans by the pint and quart must also have 8c per pint and 15c per quart added. On corn, add 12c per quart.

NEW PRICES ON GARDEN SEEDS.

Henderson's bush lima bean. Qt., 40c; peck, $2.75.

Kidney wax bean. Pint, 15c; peck, $1.50.

Extra early Jersey pole lima beans. Qt., 30c; pk., $2.:5.

King of the Garden lima. Qt., 35c; peck, $2.25.

Henderson's Early Summer cabbage. Oz., 20c; lb., $2.25.

Fottler's Brunswick. Oz., 20c: lb., $2.00.

Large Red Drumhead. Oz., 20c; lb., $2 25.

Dwarf Golden Heart celery. Oz., 15c; lb., $1.75.

Corn, Corey's Extra Early; Shoepeg; Late Mammoth, and Gold Coin will all be sold at the uniform price of ½ pint, 5c; qt., 15c; peck, 75; bushel, $2.75.

Lettuce, Grand Rapids. Oz., 20c; lb., $2.25.

Muskmelons, Emerald. Oz., 10c; lb., 75.

Miller's Cream, same as above.

Onions, Silverskin, or white Portugal. Oz., 25c; lb., $3.00.

Yellow Globe Danvers. Oz., 20c; lb., $2.00; 5 lbs., $1.75 per lb.

White Victoria. Oz., 25c; lb., $3.00.

Parsnip, Improved Guernsey. Lb., 40c; 10 lbs., $3.00.

Peas, Alaska. Peck, $1.50; bushel, $5.00.

American Wonder. Peck, $1.75; bushel, $6.00.

Stratagem. Qt., 25c; peck, $1.75.

Sandwich Island oyster-plant. Oz., 10c; lb., $1.25.

Squash. Giant Summer Crookneck. Oz., 10c; lb., 65.

Hubbard squash. Oz., 10c; lb., 65.

Tomato. Golden Queen. Oz., 20c; lb., $2.50.

Ignotum. Oz., 25c; lb., $2.50.

Dwarf Champion. Oz., 20c; lb., $2.50.

Turnip. Breadstone. Oz., 10c; lb., 80c.

Those who have purchased since the first of January, and who have paid enough more than the above figures to make it worth while to call our attention to the fact, can have a rebate corresponding to the above, when they make it known. Prices of other seeds will be as in our seed catalogue, which is ready to mail on application. As usual, there are liable to be sudden changes, without notice. As an illustration: Almost every seedsman in the United States has sold out on the Prizetaker onion, therefore the price has gone up so that it would be impossible for us to hold to our printed price list were it not for the fact that our boys got the price pretty well up to start with—$6.00 per lb. Just now the very best figure that can be obtained of William Henry Maule, the originator, even on 10-lb. lots, is $5.00. Thus you see why a seedsman must add, "All prices are subject to sudden advances without notice." The rapid fluctuations on clover seed within a few days (see mention elsewhere) is a vivid illustration of this. Therefore do not get cross and call your seedsman names because he sometimes finds everybody sold out to such an extent that he absolutely *can not* adhere to his printed price list.

COLD-FRAME CABBAGE-PLANTS.

We have three or four thousand of these that we should be glad to dispose of at once, as the room they occupy is wanted for other purposes. Of course, they are the Jersey Wakefield.

STANLEY EXTRACTORS.

We desire to notify those in want of these machines that we are now the manufacturers, having bought out the stock and good will from E. R. Newcomb, and the control of the patent from G. W. Stanley. We have a good stock of machines ready for prompt shipment.

HONEY COLUMN.

CITY MARKETS.

DETROIT. *Honey.*—Comb honey is selling very slowly. Stocks rather low. Best bringing 13. Extracted, 7@8. *Beeswax*, firmer at at 26@27.

M. H. HUNT,
Mar. 9. Bell Branch, Mich.

CINCINNATI. *Honey.* No change in the market since our last. Demand is slow. Extracted honey brings 5@8 on arrival. Comb honey sells at 14@16 for best white in a jobbing way.

Beeswax.—There is a fair demand for this, at 23@25, for good to choice yellow on arrival.

CHAS. F. MUTH,
Mar. 9. Cincinnati, Ohio.

SAINT LOUIS.—*Honey.*—Market very quiet in comb, at unchanged prices. Some inquiry for extracted at 5¾, in barrels; 6½@7 in cans. *Beeswax*, prime, 27.

Mar. 9. D. G. TUTT GRO. CO.,
St. Louis, Mo.

KANSAS CITY.—*Honey.*—The market for all kinds of honey is very slow. The supply is large, demand light. We quote: No. 1 white, 1-lb., 14@15; No. 2, 13@14; No. 1 amber, 1-lb., 10@12; No. 2, dark, 8@10. Extracted, white, 7; amber, 6@6½; dark, 5@5½.

Beeswax, 23@26.

Mar. 9. CLEMONS, MASON & CO.,
Kansas City, Mo.

BOSTON.—*Honey.*—We quote you our honey-market as follows. One pound comb white, 13@14. Extracted, 6@7. Demand fair.

Mar. 9. BLAKE & RIPLEY,
Boston, Mass.

KANSAS CITY.—*Honey.*—Demand poor, with a large supply of comb. We quote: Comb, 1-lb., fancy, 14@15; dark, 8@9. Extracted, white, 7; dark, 5@6. *Beeswax*, none on the market.

Mar. 9. HAMBLIN & BEARSS,
514 Walnut St., Kansas City, Mo.

PORTLAND.—*Honey.*—Comb honey scarce, 1-lb. selling 16@18; 2-lb., 14@16. Extracted, 6¾@7½.

Beeswax, scarce at 30.

Feb. 25. LEVY, SPIEGL & CO.,
Portland, Or.

ALBANY.—*Honey.*—Since the beginning of Lent there has been considerable demand for comb honey, but at reduced prices. The Jewish trade are also beginning to buy extracted for their annual festivities, which occur soon. We quote: White-clover, 11@13; mixed, 9@10; buckwheat, 8@9. Extracted, light, 7@8; dark, 6@7. *Beeswax*, 25@26.

Mar. 10. CHAS. MCCULLOCH & CO.,
Albany, N. Y.

CHICAGO.—*Honey.*—The market is not very active; but some sales are made at unchanged prices. Fancy comb sells at 15@16; off grades and dark comb are uncertain in price. Extracted sells freely, at 6@7@8, according to kind and quality. *Beeswax*, 25@27.

R. A. BURNETT,
Mar. 8. 161 So. Water St., Chicago, Ill.

FOR SALE.—California 2-lb. section comb honey at 12c per lb. Wis. and Mich. 1-lb. section candied comb honey at 11c per lb. If you want honey of any description, write us. S. T. FISH & CO.,
4-5-6d 189 So. Water St., Chicago, Ill.

FOR SALE.—One 30-gal. bbl. medium dark honey, fine flavor, at 5c per lb. One 45 or 50 gal. bbl. of mangrove, very white and candied solid, of fine quality and flavor at 5½ net, f. o. b. Samples sent to intending purchasers, if desired. J. B. CASE,
Port Orange, Volusia Co., Fla.

FOR SALE.—20 lbs. extracted clover honey, in new buckets, for $2. By the barrel cheap.
6-7d B. T. BALDWIN, Marion, Ind.

FOR SALE.—A No. 3 Novice Extractor, used only once. Price $6.00. Freight paid.
C. C. GRIFFIN, Olean, N. Y.

Free. 28-page **RESTRICTOR** book. How to avoid swarms, brace-combs, and losses in winter. How to get bees into sections in one hour; and rear queens in full colonies, etc., same old fixtures. C. W. DAYTON, Clinton, Wis.
24-23db Please mention this paper.

EARLY QUEENS,

FROM our branch Apiary in Texas, which is three miles from any other bees, and none but the **best FIVE-BANDED Golden Italian Queens** used to rear Queens and Drones. Our bees are the gentlest, best workers, and most beautiful bees known. Safe arrival and **entire** satisfaction guaranteed. one Warranted Queen, March and April, $1.25; 6 for $6.00. If you want the **best,** send for our circular **at once.** 1-24db

S. F. & I. TREGO, SWEDONA, ILL.

In writing to advertisers please mention this paper.

BEE-HIVES, SECTIONS, ETC.

We make the best goods and sell them cheap.
Our Sections are far the best on the market.
Our Works turn out the most goods of any factory in the world.
Our goods are known as the best throughout the United States and Europe.
Write for free, illustrated catalogue and price list.

G. B. LEWIS CO., WATERTOWN, WIS.

Please mention this paper. 1tfdb

My 654 Colonies of Italians

Are wintering well, and, as usual, I will sell a limited number of them to reduce stock to the required number. Each hive shipped to my customers will contain a full prosperous colony of Italian bees, with a last year's tested queen, on eight Hoffman frames of brood and honey. As my main object in handling bees is honey, we raise all our queens in full colonies from cells built under the swarming impulse, using the choicest and most profitable stock to breed from.

Safe arrival guaranteed in May and first half of June. For terms please address

3-8db **JULIUS HOFFMAN,**
CANAJOHARIE, N. Y.

☞In responding to this advertisement mention GLEANINGS.

Good Queens Cheap.

300 tested Italian queens, raised last season, for sale at $1; $10 per doz. A few hybrids at 25c each. They will be shipped about June 15th to 25th, or later if desired. Have order booked now and send money when you want them. My bees have been *BRED FOR BUSINESS*, and these are bargains. Nuclei and full colonies at very low rates. Send 25c for sample by mail of

THE UTILITY BEE-ESCAPE.

Thoroughly tested, practical and cheap. It cleans them out and they stay out. Any one can make it. Get a sample and make your own. 4tfdb

J. A. GREEN, Dayton, Ill.

☞In responding to this advertisement mention GLEANINGS.

THE BEE-KEEPERS' REVIEW

IS
Progressive and Practical;
Fearless and Truthful;
Unbiased and Independent;
Enterprising and Illustrated;

And filled with **IDEAS** from cover to cover. Send 10 cts. for three back numbers and see if this is not a truthful advertisement; or, better still, send $1.00 and receive the REVIEW one year.

W. Z. HUTCHINSON,
FLINT, MICH.

☞In responding to this advertisement mention GLEANINGS.

DOVETAILED HIVES AND ITALIAN QUEENS.

Send for price list of Italian Queens, Drones, Hives, Smokers, Foundation, etc. Finest breeding queen, after March 1, $4.00. Tested, $2.00; 3 for $5.00. Untested, in April, $1.00; 6 for $5.00, or $9.00 per dozen by mail. Safe arrival guaranteed. Orders for Queens booked for 20 days or more, 5 per cent discount. Make money orders payable at Clifton.
3tfdb **COLWICK & COLWICK, NORSE. BOSQUE CO., TEXAS.**

☞In responding to this advertisement mention GLEANINGS.

RECORD BOOKS

Show that requeening, early in the spring, colonies having *old worn-out* queens, *more than doubles the yield of surplus*, and tends to

PREVENT SWARMING.

I make a specialty of contract orders for queens of the Leather-back strain of Italians. Queens ready to ship 1st to 10th of March.

A. F. BROWN,
HUNTINGTON, PUTNAM CO., FLA.
4-5d Agent Southern Express Co.

☞In responding to this advertisement mention GLEANINGS.

BEE SUPPLIES RETAIL —AND— WHOLESALE.

Everything used in the **Apiary.** Greatest variety and **largest** stock in the West. New catalog, **54** illustrated pages, free to bee-keepers. **E. KRETCHMER, RED OAK, IOWA.**

In writing advertisers please mention this paper.

FOUNDATION AND SECTIONS are my Specialties. No. 1 V-groove Sections at $3.00 per thousand. Special prices to dealers. Send for free price list of every thing needed in the apiary.
2tfdb M. H. HUNT, Bell Branch, Mich.

☞In responding to this advertisement mention GLEANINGS.

Send for Price List to
R. E. HARBAUGH,
Manuf'r and Dealer in Bee-Keepers' Supplies.
Breeder of Italian and Carniolan Bees and Queens, Light and Dark Colored Ferrets.
25th and Clay Sts., - - - St. Joseph, Mo.

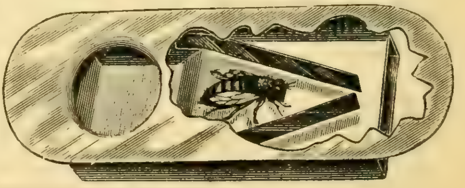
☞In responding to this advertisement mention GLEANINGS.

Porter's Spring Bee-Escape.

We guarantee it to be the best escape known, and far superior to all others. If, on trial of from one to a dozen, you do not find them so, or if they do not prove satisfactory in every way, return them by mail within 90 days after receipt, and we will refund your money.

PRICES:—Each, by mail, postpaid, with full directions, 20c; per dozen, $2.25. Send for circular and testimonials. Supply dealers, send for wholesale prices.

10tfdb **R. & E. C. PORTER, LEWISTOWN, ILL.**



☞In responding to this advertisement mention GLEANINGS.

GLEANINGS IN BEE CULTURE
A Journal devoted to Bees and Honey and Home Interests.
Illustrated Semi-Monthly
Published by A. I. Root.
$1.00 per year. Medina Ohio

Vol. XX. MARCH 15, 1892. No. 6.

STRAY STRAWS

FROM DR. C. C. MILLER.

I'M OFF THE FENCE with both feet, standing up straight for no bounty.

A WAIL comes from Minnesota, that tent caterpillars are destroying basswood bloom.

MRS. AXTELL says in *P. B. K.* that "it takes brains to care for bees." Just listen to her!

MICA in stoves will soon become dim if you burn any thing but hard coal. No wood, paper, or soft coal.

THE *C. B. J.* thinks it high time something were done about a bee-keepers' convention at the World's Fair.

ADULTERATION exists. Plenty of it. No use to blink the matter. *Fight* is the word. No make-believe fight, either.

REMEMBER that bees consume six times as much honey in April as in December; and if you don't look out some will starve.

EDITOR COOPER, of the *Bee-keepers' Magazine*, is doing missionary work, trying to get people to plant flower-seeds. Success to him.

THE ONTARIO Bee-keepers' Association sends free to each member this year a copy of the *C. B. J.*, the same being a good paper.

ARTIFICIAL HONEY is made in Germany so good that scientific men say it can't be detected. But the bee-men say it tastes like burnt sugar.

ALLEY has 32 colonies in the house-apiary, with the view of getting them strong earlier in the season. In May *Api.* he'll tell how it works.

GOOSEBERRIES, as honey-plants, are recommended to be planted in fence-corners, everywhere, even in waste places, by F. Huck, in *Deutsche Imker*.

COLORADO beats Michigan. L. Brock, at Colorado State convention, said it cost $1\frac{3}{4}$ cents per pound to produce comb honey. Now, who can do it for $1\frac{1}{2}$?

MRS. MILTON CONE (*Api.*) says a flock of Pekin ducks allowed the range of their apiary almost depopulated the hives; but she raised 700 chickens all right.

I SAW A BOOK about patents, on Ernest's desk. Has he so far departed from the way in which he was brought up as to be contemplating the getting-out of a patent? May be he intends to patent sealed covers.

J. B. HALL denies the soft impeachment that he advocates a $\frac{3}{16}$ bee-space. I thought it seemed a pretty tight squeeze; but there it was, in cold print, on page 784, *C. B. J.* Did the *C. B. J.* printer man monkey with those figures?

I DIDN'T BELIEVE G. K. Hubbard was hard-hearted enough to keep that boy standing always working at his section press. The picture now shows him sitting down.

U. GUBLER (*Review*) thinks it probable that, the older the larva, the older the nurse-bee that feeds it, a larva of one or two days being fed by a nurse not more than five days old; a nurse nine days old preparing a suitable diet for larvæ of four or five days.

THE PROGRESSIVE BEE-KEEPER gets a raking from one of its patrons for using type so large that it "is first-reader type, fit only for children to read." Yes; but, friend Urban, you don't know what a comfort to spectacled eyes is that same large type, so beautifully printed on nice paper.

I'D GIVE quite a little to have friends Doolittle and Taylor shut in a room together to argue out the cost of honey—kept there till they agreed—and they would agree if they had time enough—and then have a phonograph report the whole thing. We'd get some valuable points.

THE *C. B. J.* calls the N. A. B. K. A. a stock company, and doubts "if a meeting of stockholders will be as interesting as a convention of members." Say: if I've been fooled into this thing, and we're not to have a convention of members any more, I'm going to get out and join the O. B. K. A.—if they'll let me.

OUTDOOR WINTERING was a success with the four colonies I packed in the winter of 1890. I left out 12 last winter to try in winter cases. Failing to get cases in time, I concluded to leave the 12 out without protection. I wanted to find out how they would winter in that condition. I found out. Just 100 per cent of them died dead.

THE NAME N. A. B. K. A. has too much alphabet in it. R. McKnight, in *C. B. J.*, shortens it to N. A. B. A. That's sensible, especially as "Bee-keepers" is really only one word, and there is no initial K. Wouldn't it be sufficiently distinctive to call it, for short, "North American Association," and use the initials "N. A. A."?

QUIGLEY had bees in hives with flat covers. "After a light snow," he says' "the snow had melted over the cluster on all of them, showing just where they had clustered, while the snow on the covers of empty hives had not begun to melt. Don't you think from the above that some heat escapes through a $\frac{7}{8}$ board?" Yes, and it shows that packing *over* the board would be an improvement.

"I HAVE business relations with some 73 societies, and have become personally acquainted with more than 3000 bee-keepers. Among the 3000 I do not know of one drinker." So said Mr.

Glatow, in the Centralverein of Germany. I think it has been noticeable that, in every body of bee-keepers I have ever seen, they were an exceptionally clean set of men. Mr. Glatow thinks bee-keeping helps to make them so.

THE LAYING OF QUEENS, the German writer Gerstung contends, is not continuous, but periodic, about 7 periods of 22 days each in a season; 16 or 17 days of laying, followed by 5 to 7 days of rest, makes the period of 22 days. I should have said eggs can be found any day in my hives; but if Gerstung is right, there ought to be a day or two every three weeks when there is not an egg in the hive. Let's watch, this summer.

THIN SECTIONS, not more than 1½ thick, have the following strong points claimed in their favor by the *C. B. J.:* Capped sooner than thick ones; whiter, because less time in hive; looks clearer when you look through the sections; honey thicker; ships better; sells better. All right, friend Jones, I'll change to any thickness you say, if you get the rest to agree; but don't, please don't ask us to change from 4¼ for the other dimensions, just as we've settled on that for a standard.

A CORRESPONDENT, referring to the editor's statement that he can get bee-work done for $1.50 to $2.00 per day, thinks emphasis should be placed on the qualifying clause, "*providing we supervise or superintend the work.*" I don't see that there's any thing particularly out of balance in that correspondent's head. If you had a number of hands and hired a superintendent, wouldn't you charge up the superintendent's time in expenses? And shouldn't you charge for your own superintending?

CHEMICAL ANALYSIS made by the U. S. Government chemists, has in some cases decided that honey was adulterated, or "apparently adulterated," which was known to be pure. Perhaps this is the explanation, which I get from the German: In polarization, honey turns to the left, cane sugar to the right. But honey-dew turns to the right also; and as even the finest samples of honey are likely to have just a little honey-dew in them, polarization would show "apparent" adulteration where there was none.

HONEY FOR GRIP is going the rounds of the German dailies. Take daily a teaspoonful of honey and let it dissolve slowly on the tongue, as a preventive, the formic acid killing the bacillus that attacks the mucus membrane of the throat. Honey dissolved in water and drawn into the nostrils hastens a cure. The *Deutsche Imker* adds that, besides being pure, the honey must not have been heated, for that dispels the formic acid. That's all right for a German bacillus; but do you suppose a wide-awake Illinois bacillus would give in for a little thing like that?

COST OF COMB HONEY, AGAIN.

DOOLITTLE REPLIES.

The main part of my mission in this world is to stand for *God*, for the *right*, and for *humanity*. Feeling this to be the case, and feeling that you, Mr. Editor, and Messrs. Taylor and Hilton, are wrong on this matter of the cost of comb honey, I crave the privilege of being heard again on this subject in GLEANINGS. The position you three take savors much of the ideas advocated by the hard-fisted and hard-hearted of this world, that a few should receive a *large* share of this world's goods, while the average person should work for a *mere pittance.* B. Taylor, in his noble article in the February *Review*, says, "In this age, grab-games of one kind and another get away with more than half of all we earn." But according to the three persons named above, it is not "grab-games" which is doing this, but "net profit" is to take nearly the *whole.* I wish it distinctly understood, that Doolittle believes that the labor of *hands* and *brains* is just as much *cost* in producing honey as is the money spent in buying hives, crates, sections, or any of the other cash outlays; also that the labor of hands and brains is just as much *cost* in overseeing the apiary as it is cost in producing manufactured articles or in running any other business of the country, where $1000, $5000, $10,000, or $20,000 is often paid an efficient overseer. Yet, with Mr. Hilton all of this overseeing, and with Mr. Root all of his "supervising or superintending," is to go in as profit. When I was a boy at school, a classmate and myself were called the dullest scholars in the whole school. Doolittle finally went at bee-keeping, and the classmate as a salesman on the road. The classmate receives $2000 a year salary; but, according to Taylor, Doolittle should cost only $45 for six weeks in the year (and that right at the time when the agricultural world pays the highest wages), that he may count all that he receives more than that as profit. If this is right, this classmate should call all he receives over $1.07 a day, profit. In a recent paper I see that a certain company had employed a certain person to superintend their business at a salary of $18,000 a year. Now, shall this man, according to Hilton, Root, and Taylor, count all he receives above $1.07 to $2.00 per day as profit? He cost the firm that amount ($18,000). Would it have been any less cost had the proprietor taken that place and received the $18,000 himself? No! *no!* NO! Let us be reasonable. If Mr. Hilton oversees his workmen and his apiary he is entitled to the worth of his intelligent brains, and that worth is *cost*, just as much as any part of the matter, and he is just as much entitled to good pay as is my classmate or the overseer mentioned above. These things are not *profit*, and it is not right to have it put before the world in that light. Again, when we speak about how much it costs to produce comb honey, we mean the cost with the *average* bee-keeper, if we would be fair, and *not* the cost with those who have exceptionally good facilities for its production cheaply. A man and his son once cut a bee-tree. They were gone from home two hours, and obtained 150 pounds of honey. This honey cost only about ⅓ of a cent a pound. Would it be right for me to say, "This is what it costs to produce a pound of comb honey"? I fancy I hear a tittering all along the line; and yet this is only on a level with Bro. Hilton's figures. What has been done by one, others can do. In looking over "beedom," we find the average man keeping one yard of bees, and this, in the majority of cases, gives the best results. To the care of these bees he devotes all of his energies, except the work usually done in the garden and his small place. If he were a better man he could do more, but he can not be changed; besides, it takes a pretty fair sort of man to do this. This man could get, in some manufacturing town, from two to three dollars a day, and board himself. Say he could get $600 a year; then, as a bee-keeper, he is a six-hundred-dollar man, and that is a part of the cost of producing his crop of honey. To claim otherwise is unworthy of the intelligence of an American citizen. If my classmate had gone into bee-keeping he would be a two-thousand-dollar man, and if he could not get that out of the bees he would go on the road again; and I see no logic that can make any *net profit* to him out of his bees till they pay him more than the $900, besides and above the other necessary expenses. Can you, friend Root? If this is so—and I can see nothing else—then I have a right to the $5.00 a day as the cost of my labor in the bee-yard, if I can secure that much. I have no objections to friend Root's saying I am "getting good pay" (though but a trifle compared with what some get), as he does in his footnotes; but when he says, "or, if you please, profit," I don't please, for that would be saying that I was not worth as much to the world as my equally dull classmate, whom the world considers worth nearly twenty per cent more than that. Of course, our six-hundred-dollar bee-keeper raises something on his place, has his garden, and has his house-rent; but it is usually as cheap to live in a hired house as to keep one in repair, counting interest on money. What he raises on his place is more than offset, with the majority in the country, by its disadvantages, such as the lack of best schools, best churches, and social privileges. Add $600 a year to Hilton's or Taylor's estimate, and their showing will be very different, and very much nearer the truth. We are, or *should be*, talking of what *actually is*, not what might be under the most favorable or ideal conditions. A man running a supply business, a farm, or some other business, may sometimes get his honey cheaper, especially if he allows his other business to pay him the salary he is entitled to; but such would not be a correct and proper showing.

I might mention other things which no one has taken into account so far, such as that, when the bee-keeper dies and his business is sold out, it decreases in value from 50 to 75 per cent, while the average bee-keeper runs his business less than twenty years; change of surplus arrangements, etc., caused by continual improvement, long before they are worn out; buying queen-excluders, bee-escapes, drone-traps, and all of the many things necessary to keep up with the times, which would make the interest nearer twenty per cent than the eight which Bro. Hilton allows. Much more might be said along this cost side, but I forbear. All know that the bee-keepers of our land are *not* getting rich, as far as dollars and cents are concerned; and it seems to me to be a wrong idea to make such a great cry of *profit* where there is so "little wool." G. M. DOOLITTLE.

Borodino, N. Y.

[Now, friend Doolittle, don't you think you are a *leetle* "hard-hearted" in intimating that our position "savors of the hard-fisted"? We agree with nearly all you say, and, it seems to us, you would hardly have produced some of these self-evident arguments if you had taken in the *whole force* of what we three said. Let us throw aside the term where we split, *profit* and *cost*, and look at it this way: You are making a good living if you can get $5.00 per day out of the bees; so are Taylor and Hilton. The fact is, we are in reality on the same platform, only we didn't know it, or perhaps won't admit it. Dr. Miller's article which follows makes this plain.]

COST OF COMB HONEY.

DOOLITTLE'S WAGES VS. TAYLOR'S PROFITS.

Don't expect me to settle the question. I don't know enough. But when three men, possessed of as much intelligence as friends Taylor, Doolittle, and Hilton are so wide apart in their conclusions, it is worth while to inquire into the matter and see whether it is not possible to bring about a reconciliation. I have confidence in the honesty of the three men; and when they give different answers to the same question, it must be they are looking from different points of view.

I wish we had from each of them a statement as to what each means by *profit*. Perhaps all three would agree that profit is the difference between cost and selling price; but they may not all mean the same thing by this. When it comes to defining *cost*, I suspect they are using the word with different meanings. Doolittle says of Taylor, "Is not his time worth just as much in the apiary as it is in the senate or anywhere else?" May be, and may be not. If Mr. Taylor can get $10 per day for his time at the bar or in legislative halls, it does not follow that it is worth the same everywhere else. I can get a man to saw wood for $1.50 per day. If the Hon. R. L. were to saw my wood, I shouldn't like to pay him $10 a day for it, nor $1.50. No, I wouldn't be willing to pay him $1.07. I don't think he's worth it. But I might be very glad to pay him $5 an hour if I needed his valuable advice on some legal point. So I don't believe Mr. Doolittle is right if he wants us to believe that the same man's time is worth the same amount wherever it is placed. I don't believe he meant to have us think so.

A somewhat troublesome friend at my elbow stoutly insists that Doolittle is right. She says that, if he can make $10 every day at his profession, and I want him to stop a day to saw wood for me, I ought not to expect him to do it for less than $10—a putting of the case that I can not well refute.

But I don't see that I'm getting ahead any at reconciling Doolittle's $5 a day with Taylor's $1.07. I think friend Taylor's position is something like this: If I can get a man to do my work at $1.07 per day, then I ought to figure $1.07 as the cost of labor, whether I do the work myself or get some one else to do it. Of course, when I come to sell my honey I expect to get more than it has cost me, else where is there any profit in the business? And I am entitled to a profit on the score of the skill and knowledge I have used in directing the labor?

If I interpret friend Doolittle correctly, he would say: "It requires skilled labor to work at bees; and during the busy season I would not be willing to work for another person for less than $5 per day, neither do I think I could hire any one of equal ability for a less amount. It seems quite clear, therefore, that, $5 per day is a fair amount to figure, in estimating the cost of honey."

Now, when you get down to bedrock is there any real difference in the views of the two men? To compare their real views more fairly, this question might be put to them: At what price will you contract to sell all the honey you raise for the next three or five years? I doubt whether you would find them so very far apart in their answers. However they may talk to each other about the cost, when they come to sell the product, each one wants pay for the same thing, and probably about the same amount of pay. Taylor wants pay for the labor and also for the skill; and Doolittle wants pay for his skilled labor. Where's the difference?

Mr. Doolittle estimates that 6000 lbs. of honey cost $900, or 15 cts. per pound, and consequently there is no profit in it when sold at 15 cts. per pound. Mr. Taylor estimates that 6000 pounds cost $375; therefore when sold at 15 cts. per pound there is a profit of $525. But, mark you, Mr. Taylor makes no charge for skill, and Mr. Doolittle does—that is, he charges for skilled labor, which is skill and labor.

I think the editor gives the key to the situation when he says, on page 120, "When he charges himself $5 per day for labor, and gets that much in return, he is getting good pay; or, if you please, profit." That's it, pay *or* profit. It's a difference of names. Mr. Doolittle gets his *pay* for his skill, and gets no profit. And if he gets a fair price for his skill, he is entitled to no profit. Mr. Taylor makes no charge for his skill, and figures a profit. One calls it *pay*, the other calls it *profit*.

If any one should insist that, in Mr. Taylor's case, there is a net profit of $525 on the 6000 pounds, independent of any skill, I think a little consideration will show him his error. If skill cuts no figure in the case, then Mr. Taylor has nothing to do but to turn his $1.07 man loose in his apiary, and pay no attention to him all summer long. Or, do you suppose Mr. Taylor would spend the time and thought he has spent upon bees, pay for books and periodicals, and going to conventions, with no expectation of getting any pay for it? Will he do it just for the fun of it? No, he likes fun, but he doesn't believe in that kind of fun "that we alone enjoy" without our wives and children having a share in it—unless he gets pay for it.

The question whether it is the right way to charge for skilled labor, and if so, how much, is not easily answered in a word. I have attempted here to show only that, in the item that shows the greatest disagreement, it is a matter of names rather than any thing else.

Marengo, Ill. C. C. MILLER.

[You are quite right, doctor, and we are glad to have you explain it. The whole thing, as we understand it, in a nutshell, is this: Mr. Doolittle figures his profit, or pay, in the amount he charges himself or his apiary for his labor. Mr. Taylor figures in the actual cost of hired labor; and whatever he makes over and above expenses in the production of a crop of honey makes up his profit, and is therefore the pay for his skill in supervising. After all, the two correspondents mean about the same, only they look at it from different standpoints. What one calls "cost," the other divides into cost and profit. We can not help believe, however, but Mr. Taylor's use of terms is correct. Here is another well-written article from Mr. Taylor.]

ECONOMY IN HONEY PRODUCTION.

THE COST OF A POUND OF HONEY; R. L. TAYLOR REPLIES.

In GLEANINGS of Feb. 15th, and also in the *American Bee Journal* of Feb. 18th, I notice that Mr. Doolittle vigorously attacks my address on the above topic, delivered Dec. 31st last, at the meeting of the Michigan State Bee-keepers' Association; and being impressed with the surpassing importance of the subject, I am constrained to examine as briefly as I may, consistently with clearness, the objections he raises to the position I there took, and I shall first refer to his argument in the *American Bee Journal*.

Our critic there cites my partial indorsement of his figures, made four years ago, where I stated he had overlooked the losses in winter and from disease. It is only necessary to reply that I am four years older than I was then. I trust I know more. Besides, I have found and use a hive that very greatly reduces the necessary amount of labor required in the apiary; and as to winter losses, I think I have learned how to reduce them to almost nothing. And then, if it were any sin to grow, it would come with ill grace from him to taunt me with it; for let him compare the statement he made four years ago of the items which go to make up the cost of the production of honey with the one he makes in GLEANINGS now. Of course, he made each of them carefully and conscientiously, according to the light he had at the time. Then he put the time necessary to care for 100 colonies at 313 days; now he puts 81 days, including the time required for the perusal of apicultural books and journals, and for attending bee-keepers' conventions as the time necessary for the care of *150* colonies! Then he put the interest and taxes, and the wear and tear on plant and hives of 100 colonies, at $64; now he puts them at $180 on those of 150 colonies! Now he insists on all owing the apiarist $5.00 per day; then he allowed him but $1.25! So we are in the same skiff. If not dead we are all moving. What should most concern us is, are we moving in the right direction?

Of course, this growing knowledge greatly reduces the cost of the production of honey; but I have never shed tears over the reduction of the cost of any thing useful to humanity. If to assume that attitude "belittles our pursuit," so much the worse for our pursuit; but I feel very sure it can not prevent our rising to the "stature of God's freemen," whatever may be meant by that sonorous phrase. Cotton cloth which once cost 50 cents per yard can now be produced for 5 cents; and if I show that it can be made for the latter sum, I can not see very clearly how I thereby sink below "the stature of God's freemen," nor why to do so would be "an open insult to every cotton manufacturer in the land," nor why the finger of scorn should therefore be pointed at me with the exclamation, "Shame on such reasoning!"

It must now be evident from this that our critic does not at this point discuss the matter in hand. What he argues is, that a high price for one's labor, or a large income, adds to one's dignity, and exalts one's manhood; but I am inclined to think he is wrong even in that. For myself I should not estimate a man by the gold he possesses, by his hourly income, nor by the price he puts on his labor. For divers reasons I prefer to work in the vineyard, the orchard, and the apiary, even at $1.25 per day, than follow the law at $10.00 per day; and Dr. Miller refused the offer of a large salary to engage in an occupation which was not entirely congenial, for the sake of outdoor home life, and work among the bees, where, many years, he accepts less than $1.25 per day with thanks.

"A man's a man for a' that."

I feel quite unwilling to accept the doctrine that Astor is a better man because he receives $16.38 per minute; indeed, I greatly doubt if he is so good; and if one should undertake to argue to the contrary, I should feel "shame on such reasoning," even if a feeling of delicacy forbade its expression. No, I can easily conceive of circumstances wherein I would gladly accept an offer of $45 from Mr. Doolittle for six weeks' work, nor would I feel that I had thereby degraded myself, nor could I make such an offer, made in good faith, a reason for anger.

The rank is but the guinea's stamp —
The man's the gowd for a' that.

After all, the *point* in my address which is so furiously attacked is a very simple one—the cost of a man's labor for six weeks. One who desires to consider squarely the very question will find little place for rhetorical pyrotechnics; and if our critic harbors that desire he may settle it with the greatest ease; but it will not do to mistake for the true question another which is quite foreign to the matter; viz., the value of the time of the owner of the apiary. What a basis upon which to calculate the cost of the production of honey! Prof. Cook's time, we will say, is worth $10 per day; A. I. Root's, $12, and Mr. Doolittle's, $15. Will it do to say, therefore, that Prof. Cook can produce honey at a less cost than Mr. Root, and Mr. Root at a less cost than Mr. Doolittle? Why, if that were so, when we consider that the time of the great mass of bee-keepers is worth only about $1.25 per day, one could not fail to see that Mr. Doolittle must inevitably be distanced in so unequal a race. But it is not so, and we may still expect to see him come out ahead. How does the bonanza farmer, whose time is worth $50 per day, or the great lawyer whose time is worth $100 per day, calculate the cost of the wheat that is produced on his farm? Why, they would figure with the other expenses the amount necessary to hire the labor required to produce the crop; and if either chose to drive team on the farm for a week or a month, he would not be so unjust to his wheat crop as to charge it with $50 or $100 a day for driving team. We ought, in like manner, to be fair with our honey crop. If Mr. Doolittle can get the work of the apiary done at $1.25 per day (we don't work here on Sunday), he ought not to be heard to impose his own labor upon it and charge therefor $15 per day. I have had no trouble in getting it done at a figure considerably less than $1.25.

Turn now to the figures in the criticism in GLEANINGS. It is putting it mildly to say that, when I examined them, I was somewhat surprised. We find yoked together Heddon hives and Doolittle wages! How could they get together in the same apiary? or has he adopted that excellent hive? Is Mr. Doolittle calculating the cost of honey production in his own apiary, or in some apiary where the Heddon hive is known to be used? It is rather startling, too, to find that, because the apiarist has studied the apiarian books and journals, and attended the bee-keepers' conventions, and become thereby skilled, and his time valuable, he allows him $5.00 a day for his work, and then turns around and allows him $5.00 a day for the time spent in reading the books and journals and attending the conventions! and that, not stopping there, he goes on, allowing him the cost of the books and journals and of attending the conventions! I have been much in and out of law offices, and it is evident they are no place to learn how to make charges.

Mr. Doolittle does not attack my figures for cost of plant, except that he takes the hives out of that category; but for what reason, I fail to see. I put colonies of bees, hives and all, at $5.00, which is more than the wholesale market price will warrant. But granting his point for the time, he lives where money commands a high rate, or else he is unfortunate in the cost of his Heddon hives, to make the double interest, 36 cents, on each. Here they cost less than $1.00 each; and as they will last fifty years, with little repair, I could not conscientiously charge double interest, even on that; but, of course, I do not allow common mechanics $5.00 per day, nor machinery in like proportion. However, I see no reason why hives should be separated from the plant and made an extra charge.

It is possible he intends these hives for swarms. If that be so, then of course the apiary should have credit for the swarms, which would make a further very material reduction in the cost of the honey crop.

Freights and commissions will, of course, vary. These charges here for moving the crop in question, 6000 pounds, from my apiary to the railway, one mile, thence to Chicago, nearly 300 miles, with commission for selling, would amount to $65.50; adding cartage in Chicago, say $2.50, makes $68—just my figures which are attacked. It is difficult to imagine where our critic would ship his honey so as to nearly double these figures (his figures are $125), unless he allows all railroad men $5.00 per day too. Seventy dollars for sugar! and, besides, $5.00 per day for feeding it! At the end of the last season (a very poor one) many of my hives had from 50 to 60 pounds of honey, exclusive of bees and frames. It is evidently unsafe to write about what does not come under one's own personal observation, or else perhaps Mr. Doolittle's Heddon hives operate differently. I do not now feed much sugar for winter stores, though last fall I might have made $150 by extracting and feeding sugar, in which case the $70 would go on the other side of the account.

Mr. Doolittle intimates that this attempt to show that the cost of the production of honey may be reduced, or "this lowering the standard of our calling," as he puts it, is made to show to the world a larger net profit. No, he fails to catch the gist of my address. As he says, the average yield has been decreasing for the last twelve years; and, judging from his statement, it is decreasing more rapidly here than in New York, as it is four years at least since we have had an average of 40 pounds. With these facts in mind I undertook to open the question as to the actual necessary cost per pound at different averages to lead to the determination, as near as might be, of the point where all gain ceases, that we might know when we must still further reduce the cost or quit the business. I think my figures are still too high for the great majority of bee-keepers. I am still convinced that it is a laudable thing to strive to reduce the cost of production, and to demonstrate how that may be done, that we may reap all the possible profit, while there is a possible profit, and avoid loss when a profit is out of the question.

I still think, as I thought when I wrote the address, that *economy in honey production is the sheet anchor of the apiarist's hope.* Economy in honey production was the title of that address; it was the thread that ran all through it, and gave it consistency. Criticism misses the mark and loses its value when it fails to discover the heart and life of the thing criticised. Economy in the production of honey is the question of paramount interest to bee-keepers, and it must come more and more to the front. What the vocation now needs most is critically exact statements with full details of the actual necessary expense of money and time required in the production of a crop of honey. The thoughts and pens of intelligent apiarists can not do us better service than in giving us such statements from real life, eschewing fancy supplies and fancy wages. How many will volunteer to keep accurate accounts during the season now opening? R. L. TAYLOR.

Lapeer, Mich.

COST OF PRODUCING HONEY.

VALUABLE POINTS FROM ONE WHO DOES NOT MAKE BEE-KEEPING HIS EXCLUSIVE BUSINESS.

In the Jan. 15th GLEANINGS there is, as I considered it, a very fair and conservative article in regard to the cost per pound of comb honey from a large specialist, Mr. R. L. Taylor. In Feb. 15th number, by Mr. G. M. Doolittle, is another that seems to me wild. These men are both up, away up, in the profession, and their opinions are worth something—in fact, all they can get for them, so I presume it is hardly becoming in a *very* light weight to criticise those opinions or differ with them; but, "fools rush in where angels fear to tread."

Now, from the point of view of one who is a bee-keeper for pleasure (and profit when he can get it), I wish to give my estimate of the cost of comb honey.

As we invoice our stock of hardware (my business) we put down cost to us only of articles and plant in making up our statement of profits or losses for the year's transactions. So, in investments in bees and fixtures it is fair to estimate only interest on the amount actually invested in the business—cost price; in fact, *what it will sell for represents part of the profits of the business* in increase in value, etc.

My apiary to-day consists of 58 colonies, all the growth or product of one swarm which came to me five years ago, without money and without price. It represents in cost to me in cash $184 in hives, foundation, extractor, and other appliances. For variable charges, I know of no better way to get at them than a statement of last season's work of the bees and myself. My account then will stand thus:

BEES, DR.

To interest on investment ($184.00) at 10%	$18 40
To wear, tear, and repair at 10%	18 40
To 5000 sections at $3.50....	17 50
To foundation for same, full sheets	25 00
To crates for shipping....................... ...	13 50
To drayage on honey to depot	50
To freight to destination, 3250 lbs. at 28c per 100	9 10
	$102 40

BEES, CR.

By 3246 lbs. comb honey at $.0252............. ..	$81.80
By 261 lbs. extracted from unfinished sections at $.0252	6 58
By 1650 sections with foundation unused......	14 02
	$102 40

Now, at the low price of $.0252 per pound for my honey, it balances the account with my bees, and still leaves me 47 lbs. of No. 1 wax, and an increase from 35 to 58 colonies to count as a factor in reducing the cost still lower. I paid out not one dollar for labor, and used of my own time only what I could conveniently spare without neglect of other interests—simply used odd moments, and time that would have been less pleasantly and healthfully spent had I not occupied it with the bees; hence I have made no allowance for work in the cost. I also have allowed nothing for commission, for that is not one of the factors in production, and should no more be estimated as a part of the cost than should the profit or commission of the retailer.

Now, I do not wish to present this as a fair estimate of cost from the standpoint of a specialist, and of one who has 150 colonies, and has only his bees as a means of livelihood, and expects to put in his whole time on that number, and do nothing else. But it is a fair one from the standpoint of thousands situated as I am, who take up bee culture, and consider the time spent with the bees as offset by the exercise and satisfaction derived from them only as a pleasure, or as a means of putting in spare time that would otherwise be wasted, expecting the bees to assist in placing the financial affairs of the family on a more substantial basis; and, further, it is one that interferes very seriously with the estimates and wishes of the specialist in honey production, as it will almost invariably break up any idea of his home market proving a profitable one. Mr. Doolittle's estimate, however, appears to be an especially exaggerated one; and he might, to his items of expense, "bee-papers and books, $5; attending conventions, $20; time spent in reading papers and books, and attending conventions at $5 per day," with equal propriety add time spent in nervous and restless tossing in bed when unable to enter the realms of Morpheus, on account of some unsolved problem in apiculture, at the rate of 50 cents per hour; and then the item of *stings*—who would, in cold blood, let a bee sit down on him, and prod in his little javelin for a nickel a prod? That is really too low an estimate; but then, think how it would help run up the cost of honey (you see I have these miserable hybrids).

Without prejudice, it appears to me that, if one counts labor, as must in justice be done, Mr. Taylor's estimate is a very careful and conservative one, as he computes labor at prices that almost any one can hire the work done for if he does not wish to attend it himself, and that is the only fair way.

FOUL BROOD.

Mr. Elmer Todd, on page 133, gives an item in regard to foul brood that is very misleading on the face of it. If Mr. Todd refers simply to the "section of country" surrounding York, he may be entirely correct; but if he refers to Nebraska at large he is very much mistaken; as Saline Co., cornering on York Co., has not a known case of foul brood in it, and a larger portion of Nebraska is in like condition. With a wide acquaintance among bee-keepers I have never before heard of foul brood in the State.

Dorchester, Neb., Feb. 19. C. F. THOMAS.

MANUM AND HIS NEIGHBOR.

HOW MR. MANUM MANAGED FIVE APIARIES ALONE; CONTINUED FROM P. 159, MARCH 1.

"What did you do with the old queens removed?"

"They were used to fill orders for such; and when all orders were filled I used the surplus to start nuclei with, by taking a comb of brood with adhering bees, with the queen; also shaking the bees from another comb with them in order to have plenty of young bees remain with the queen; and to this were added two or three empty combs and one containing a little honey. These nuclei were started in full-sized hives, and from time to time I would give them a comb of hatching brood, and by fall they were as strong as any I had. Some days I would have more orders than I could remove queens. In that case I would take queens from these nuclei to make up the deficiency, and in two or three days I gave these nuclei well-advanced queen-cells, so that by fall I found I had very few of the old queens left."

"Why not give those nuclei virgin queens instead of cells?"

"Because, Charles, they would not accept a virgin queen so readily, having been queenless so short a time; and to keep them queenless the proper length of time for them to accept of one would be a loss of time. Better give such a laying queen. They will be more readily accepted than a virgin."

"Then why not give queen-cells to those colonies where the queens were removed, and save all the bother of running hatcheries?"

"Because, if a cell is given a full colony that has brood in all stages, from the egg to hatching bees, there is more danger of their swarming out when the young queen goes out to mate, than when a virgin is given them. Of course, the virgin is not given until all brood is so far advanced that a queen can not be reared from such brood. But even if a cell, instead of a virgin queen, be given at this time, they will likely swarm; at least that has been my experience, when they would not when a hatched queen is run in, at least not until after the combs have been refilled with brood. Again, by introducing virgin queens we have the advantage of selecting, as it is not always the largest and nicest cells that give us the best queens; hence I always prefer to give a queen whenever I can, rather than a cell, for then I know what I am doing."

"Were you usually successful in introducing virgin queens?"

"Yes, quite successful. At least 95 per cent were accepted at first trial."

"Do you think you got as much honey where queens were removed as you would were they run the old way?"

"I think not, providing there had been a good experienced person at each apiary. However, I think I realized as much profit from my bees as I should to have hired help to run them the old way. There are advantages and disadvantages in both methods."

"How did the crop from your five apiaries compare with that of the other two run the old way?"

"They averaged better than did the other two apiaries; but I believe, could I have managed the two apiaries myself, I could have made a better average with them than the five where the queens were removed (but, Charles, don't tell Fred or Henry of this—please don't)."

"Was there any swarming in the five apiaries after the honey season?"

"Yes, to some extent. I think that probably six per cent of the young queens swarmed while buckwheat was in bloom. These, of course, were the first introduced; and, having filled their hives with brood, and honey coming in at a moderate rate, they swarmed out."

"Of course, you were not there to hive such swarms or care for the parent colony; hence, was it not an injury to them?"

"No; I was not there to hive the bees. They went to the woods; and as to the injury to the old stock, I think that, in most cases, it was no detriment to them, as I visited the apiaries once a week; and wherever I found that a swarm had issued I fixed them up with a laying queen."

"How old a virgin queen is it safe to introduce?"

"I am not positive about that point. I am conducting some experiments regarding this matter. I think, however, that the best results will be attained by introducing virgin queens before they are eight days old. I think when they are two to five days old is the better time; but last season, in some of my yards I was obliged to use some queens older than eight days to save an extra trip; in fact, I have introduced some that were fifteen days old; but I found such old ones were not always reliable when accepted, and I fancied such were more apt to be followed out by a swarm when they left the hive to mate; and in two or three cases such queens proved to be drone-layers; and on the other hand, some of the best queens I have (apparently so last fall) are those that were introduced at from ten to fifteen days old; yet I would not advise any one to use such. When shipping virgin queens I always send those that are but two or three days old."

"While the colonies were queenless, did they not store up large quantities of pollen, to the detriment of the colonies later on?"

"Yes; the bees gathered pollen right along, and it seemed to me at first they would pack the combs full; and, in fact, some of them were pretty well filled; but as the greater part of my colonies were requeened, and the queens laying before basswood blossomed, and as but very little pollen is gathered during its bloom, and as the young queens were laying so profusely, the pollen was consumed to a great extent in brood-rearing before another pollen harvest came on."

"Do you not have some colonies that have an excess of pollen at the close of basswood?"

"Yes, oftentimes. In that case I remove such combs as are well filled, and divide them among my nuclei that I am working up for winter, this being my only method of increase with this management."

"Do you think the bees work as well in sections while they are queenless?"

"No, Charles, not as a rule. Some colonies do; but many do not. The majority of them store the greater part of their honey in the brood-combs, from which young bees hatch out. They are sure to keep such combs full; but with strong colonies, when there is a good flow of honey, work seems to progress as well in the sections as where they have a laying queen, because they so soon get the brood-combs full. The great rush for the sections, however, comes right after the young queen commences to lay. Then all the uncapped honey is carried from the brood-combs to the sections. This is when I get the greater part of my gilt-edge honey, as the sections are filled and capped over very quickly."

"Do you think your bees are in as good condition for winter, by your method of removing the queens?"

"Yes, I do, and, if any thing, in better condition, owing to the fact that, with young prolific queens given them in midsummer, they rear a large amount of brood before winter sets in."

"Do you find it necessary to feed back as much for winter stores by this method as when swarming is allowed?"

"No, I do not; because they, being queenless for several days during the height of clover bloom, are apt to cap over quite a little in the brood-combs, which, of course, remains there for winter's use." A. E. MANUM.

Bristol, Vt.

[You have suggested some very valuable points, inasmuch as they help to clear up some of the difficulties regarding colonies from which queens have been removed to prevent swarming during the honey-flow. We are aware of the fact that many who have tried the unqueening of colonies have found it to be a failure; but as long as such men as Manum, Elwood, and others are successful, it is a great mistake to give the plan only one trial on a few colonies, and then give it up in disgust. The possibilities in this line are too great to be lost. Mr. Manum, we presume, could give us some very valuable points on the minimum cost of a pound of comb honey, and some of the short cuts he has suggested go a long way toward solving the problem. It does not lower our calling, as has been argued, to produce comb honey for less money per pound. If we could secure 20 cts. a pound for comb honey at wholsale, then we might go on and produce honey in the old-fashioned way. It is impracticable to raise the price, but there is a great deal of hope that we can *reduce* the *cost*, and facts and figures in this and the last issue are not wanting to show it.]

MORE ABOUT GRADING HONEY.

DR. MILLER CONTINUES THE SUBJECT.

The requirements of the first grade of honey, as adopted at Chicago, were so exacting that very many thought there could be very little first-grade honey. J. A. Green's highest grade is open to the same objection, and is also open to the objection that it multiplies grades, and too great a number might make trouble about marketing. For years I have sold the bulk of my honey as first class, and have had no fault found with it. I have never selected out any to sell that could pass in friend Green's highest grade, and I don't think a fourth of it could pass muster, if a tenth could. I suspect a good many others would have the same feeling of rebellion that I experienced against a system of grading that would lower the grade of my honey so that I, who had prided myself on raising almost entirely honey of the highest grade, should be obliged hereafter to confess that only a small part of my crop could come up to the mark.

On thinking a good deal about it, however, I must say that my prejudices are beginning to melt away. It's a good deal as one looks at it. If you allow me to say that I raise mostly honey of the first grade, and out of that select a part of the very choicest to sell at a little higher price, then it doesn't look so bad to me. Just this very thing is allowed by the way friend Green puts it. His highest grade is simply a selection out of the highest Albany grade, and is not so very different from the Chicago basis, only the latter has the unfortunate feature of so naming it that the great bulk of honey must be second grade or worse.

The *Review* says, very justly, that the Albany system is too wordy. "Rules for grading ought to be very concise, yet very carefully worded." I suspect it will be a very difficult thing to so word a set of rules that there will be no danger of misunderstanding, and that no two persons can take a different meaning from them. But any approach toward this will be an improvement over the present condition of affairs. Looking at the market quotations as given in the Honey Column of GLEANINGS for Jan. 15, I find the first classification separates honey into "white" and "dark;" the second, "best comb;" then in succession we have "fancy white" and "dark;" "comb honey;" "white" and "dark;" "fancy white" and "other grades;" "comb;" "white" and "dark." It will be seen that the main grading is into "white" and "dark." Now, suppose I look at a quotation and see that I can get 16 cts. for white comb. Just on the face of it I can get 16 cts. for any thing that can properly be called white honey; but if I ship I may find an actual range of 3 or 4 cents according to quality; and as matters now stand it would be a very hard thing to agree in writing just how much my honey would bring, without a great deal of correspondence. I mention these things to show how important it is to have something very definite, and to show, further, that at present we have no system, and very much need one.

The A grade of the Albany system requires that "one face of each section shall be perfect in appearance." I like that idea of "one side;" for when the section comes to its final use—on the table—only one side can be seen; and if the honey on the under side tastes all right it makes very little difference how it looks. There may be some difficulty as to exact agreement in all cases as to what is meant by "*perfect* appearance;" but I hardly see how the wording could be bettered. As to the other side of the section being "perfect in color and sealing, or nearly so," it does seem to me that "nearly so" is unnecessarily vague. It might sound like hair-splitting to name the greatest number of unsealed cells that should be allowed; but I suspect that, if you were to take five men at random, and ask them how many cells might be unsealed to make a face "nearly" sealed, you would get about five different answers. . . . . . I just stopped long enough to try the experiment on three persons (all that I could easily get at), asking each one separately, with the result that one said a section "nearly sealed" might have "seven cells unsealed;" another said "seven or eight," and the third said "eight or ten." I must say that I am surprised that they are so nearly together; but I have some doubt whether there would be so close an agreement if they had never worked together at sorting honey. But even in this case, the range from "seven" to "ten" is enough to make trouble. Would it not be better to be definite and give the exact maximum number of unsealed cells to be allowed? As to color, perhaps there is nothing better than "nearly so."

The second Albany grade is to have "but little unsealed honey." How much more does that allow unsealed than the first, which is "nearly" sealed.

The third Albany grade contains white mixed with inferior, including buckwheat and fall flowers. Does that mean that buckwheat and fall flowers unmixed are included in the third grade, or that buckwheat and fall flowers are included in the inferior honeys that may be mixed with white? It would hardly seem to mean that these two kinds unmixed belong in this grade, for, immediately afterward, buckwheat is put in a separate class by itself. On the other hand, if these two kinds be allowed in the third grade only when mixed with white, then fall flowers, pure and simple, have no place in any grade. There's trouble somewhere.

Possibly there may be some of the readers of GLEANINGS as ignorant as myself; so, Mr. Editor, will you please tell me what is meant by "boxes known as 'pieces' "? and why put a "private" mark on them?

Let me now give just a little further glance at friend Green's system. I like the man so well that I should expect something good from him; but no faults should be passed by unchallenged. I have already noticed the fact that the first three grades all make the same demand as to quality, and that throws every thing not of good flavor into the "M" grade. Possibly this is all right; but there is such a disagreement in tastes as to what is "good flavor" that it may not be wise to bring them in unnecessarily. Moreover, as the public taste now stands you may formulate all the rules you please, and the whitest honey will bring the highest price without being tasted. Still further, is not every white honey good enough in flavor to suit the general consumer?

The general spirit of his "A" grade is much the same as the Albany, and is quite satisfactory. But would you allow a single cell of pollen to throw a section into the "C" grade, if it were perfect in every other respect? By the way, Albany says not a word about pollen.

In the "C" grade, "sections must be nearly filled, with few or no unsealed cells." In that, the words "nearly" and "few" are indefinite. Couldn't a little arithmetic come in there? Again, at the close of the "M" grade "well sealed" is indefinite.

In the extra select, if I understand it rightly, a single unsealed cell, in the line of cells touching the wood, rules a section out. Isn't that a little too exacting? If a section were perfect in all other respects, and a little propolis carefully scraped off the wood left a slight discoloration, would you throw it out of the "extra select"?

I hope it will not be understood that I have any intention of treating with disrespect the efforts already made toward establishing a standard. Far from it. I am very grateful for what has been done, and am free to admit that *I* am not able to get up a scheme of grading satisfactory to myself. You may then ask, if I can not tell what ought to be done, what use there is in my talking about it. Let me illustrate. Emma has been doing some very nice work to-day painting in oils. She has been very glad to have me point out defects for her to remedy, although, if I were to take the brush into my own hand, and attempt to make a picture of a bee on a flower, a label might be needed on each to distinguish the bee from the flower. After further discussion, finding out more fully the views of others, it is possible I may know enough to formulate what I think would suit me, in which case I shall not hesitate to try my hand at it. C. C. MILLER.

Marengo, Ill.

[Boxes known as pieces?—Mr. Elwood explained this on page 155, March 1st issue.]

THE GRADING OF COMB HONEY.

J. A. GREEN CRITICISED STILL FURTHER.

Friend Green says in GLEANINGS, page 44, "I must say that I am not at all satisfied with either of the systems of grading comb honey that have been proposed. That adopted at the Northwestern convention was rather too exacting in some of its requirements, and, in some respects, was incomplete." He then gives instructions for grading comb honey as adopted by himself, which, it seems to me, are open to the same criticisms he bestows upon the system adopted in Chicago. He says that honey in the best and second-best grades should be "light-colored" and of "good flavor." Now, this matter of "color" and "flavor" was duly considered in Chicago; and it was thought best, when all things were taken into consideration, to omit them both. To include "flavor" would make heaps of trouble to both dealers and bee-keepers. For instance, "light-colored" honey may be white clover, sweet clover, basswood, willow, the sages of California, etc. Now, the flavors of these different kinds of honey are so unlike each other, and so peculiar, that what would suit one consumer would not suit another. There are plenty of people who dislike exceedingly the flavor of basswood (linden) honey. Now, suppose the retailer buys a quantity of basswood honey, warranted by the instructions as laid down by friend Green to be of "good flavor," and he sells the same to consumers who happen to live where basswood honey is unknown, and they so dislike its flavor as to find fault with it. The retailer would then be quite apt to complain to the wholesaler, and he in turn to the producer, and the objectionable feature would have to be adjusted in some way, and chiefly at the expense or loss of the bee-keeper. The same may be said in regard to some of the other kinds of light-colored honey. The only safe way for both producers and consumers to pursue, it seems to me, is to let flavor alone and give no heed to it in grading comb honey. Let the eye alone determine the grade to which any honey in the comb belongs. The sight is by no means so apt to get people into trouble in regard to honey as the taste.

The idea that only honey of "light color" can be of the best grade is preposterous, for there are many consumers who prefer dark honey, or of amber color. Much depends upon one's taste, and what market it is. Then why make any ado about color in grading honey, provided it be, in each crate, of one color, or "uniform in color," as per the Chicago instructions? This enables the dealer to get any color of honey he prefers for his market, whether it be dark, medium, or of light color; also of any grade. I see no good reason why any one should worry about the color so long as consumers can have their choice.

The Chicago convention gave no instructions how to mark the several grades of honey, but should have done so, perhaps. I see no objection to the use of letters in case they are taken in rotation. I don't like the idea of skipping around in the alphabet; for instance, from A, B, C, to M. Why not use D for M? Can any one give a valid reason? In case we use letters, why not use them in such a way that consumers can understand their meaning as well as producers and dealers? The letter A is good enough for first grade, or for the best grade, unless it might be better, all things considered, to use the double A A; then the single A might be used for second grade; B for third grade, and C for fourth grade, which, in my opinion, are grades enough. M. M. BALDRIDGE.

St. Charles, Ill., Feb., 1892.

GRADING HONEY.

AND THEN MR. GREEN CRITICISES HIS CRITICS.

I hope the discussion of this subject may be continued until we arrive at some sort of understanding as to what is desirable. If we can agree on only a few essentials, I have faith that we may yet be able to unite on some system, even though it may not be entirely satisfactory to all or to any.

In the first place, how many grades shall we have? I will readily admit that those systems which keep color and general appearance or condition distinct, such as those of Mr. Baldridge, Mr. Frazier, or Mr. Mandelbaum, as given in the *Review*, are more philosophical, more systematically exact, than one in which they are considered together. The trouble is, they are too elaborate and complex for actual use, at least until the business of selling honey has attained a higher development than it has at present. Any system which divides honey of good quality into more than four grades is unwieldy, and will break down in practice.

Some object to the establishment of a superfine grade of honey—a grade that shall be better than the great bulk of nice honey. It is probable that there are some localities where it would be impossible to produce the honey demanded for the "Extra select" grade. There are many more bee-keepers who never can produce such honey until they improve their methods. But the fact remains, that there are some bee-keepers who can produce this extra nice honey, and some of them get an extra price for it too. It is right that they should. It is possible, considering the small quantity of such honey, that it would not be advisable to place it on the general market to be sold on commission; but such honey will be produced, and the producer will receive his reward.

As Mr. Elwood says, it is impossible to express on paper all the variations which must be taken into account in grading honey. In writing out my system it was my intention rather to describe a typical section of each grade than to lay down unyielding rules. A section that is particularly nice in some respects may be permitted to be slightly defective in others. Thus I often place in the highest grade a section having some cells unsealed. But they must be of the line of cells touching the wood, and must contain no honey.

The "A" grade contains, as a rule, only white honey; but a slight discoloration of the bottom of one side of a comb is not sufficient to throw it out, provided it is up to the standard in other respects.

For a section to have the comb unattached at the bottom is a serious defect. This may not detract much from the appearance, but it renders it much more liable to be broken. This increased liability to breakage is not only during shipment, but perhaps more during the handling it receives after it reaches the hands of the retailer and consumer. At this time it is very undesirable that it should be packed upside down as often advised. The section is lifted by the bottom, which, unless there are attachments of comb to strengthen it, is apt to come loose, letting the section drop. I have seen many a section smashed in just this way.

I have produced many hundreds of pounds of honey, on the sections of which the closest examination could scarcely detect the slightest stain of propolis. Mr. Elwood is taking too restricted a view when he says that the honey-boxes are not usually seen by the purchaser or consumer. Although in many places the grocer takes the majority of his orders by telephone or at the home of the consumer, most groceries are still ordered by the consumer within the grocery. If it were not so, it would be much worse for the honey-market, for it is a well-known fact that many people never buy honey unless they see it or have it brought to their notice. The successful seller of honey keeps it prominently in sight, often taking it from the case and stacking it up on counters and in show windows, and a soiled section detracts much from its attractiveness.

Personally I entirely agree with Mr. Elwood in regard to sections not full of honey. Such sections I generally give away or use for feeding. I mentioned them in my fourth grade, simply because I knew that such honey is sold by many bee-keepers, and I wished to have the system complete.

Dr. Miller takes me up on the difference between the meanings of "flavor" and "quality." What I meant was, that the two higher grades should be of good flavor *and* quality, and the next grade the same, though I would admit to it honey not quite so good as would be needed for the better grades. You see, doctor, it's only because I'm not handy in the use of the English language, as you have somewhere expressed it, that it happened so. Perhaps it would be best to use the words "of good quality" for all of the first three grades. I think it well to have this condition, because I once had some honey sent me from Missouri that was beautiful to look at, but with a flavor that made it almost uneatable to me.

Straight combs should be graded higher than crooked or uneven ones, because they look better, and consequently sell better, are not so easily injured, and are more convenient to sell.

Dayton, Ill., Mar. 8. J. A. GREEN.

SPRAYING FRUIT-TREES.

P. H. ELWOOD RECONSIDERS THE EFFECT OF ARSENITES ON BEES AND LARVÆ.

The discussion in Albany on spraying fruit-trees while in bloom has called forth criticism. Some think that State Entomologist Lintner (as if we could tell how far a bug-man would jump) ought not to have been permitted to make such statements before the convention. But which, may I be permitted to ask, would have been the better place for Dr. Lintner to express his opinions—before a meeting of fruit-growers, such as he usually addresses, who would fall in with his ideas, or before a convention of bee-keepers who would and did controvert them? Evidently the doctor had nearly made up his mind to advise spraying during bloom, and undoubtedly would have done so had there been no evidence against it. When he left the convention he was fully satisfied that it would be best to recommend, as heretofore, no spraying until after blossoming. Nevertheless, the doctor wished more conclusive testimony. He thought Mr. Smith's bees may have died from other causes, or from poison administered in some other way. He asked that a committee be appointed to bring the matter before some of our experiment stations, particularly the Rhode Island station, which has a department devoted to apiculture, so that we might have full and complete tests. He thought the result of such experiments would be accepted as authoritative. Prof. Lintner is not to be blamed for the position he takes; for if you will turn to April 15th GLEANINGS, 1891, you will learn that the late Mr. Ashby, a very reliable, intelligent man, believed, after testing the matter somewhat, that Paris-green solutions or mixtures of the standard strength do not injure the mature bee. And I notice by the last *American Bee Journal* that Mr. Smith himself calls for experiments that will be satisfactory; and well he may, for he discloses the fact that his bees were probably poisoned by a solution of Paris green of four times the recommended strength, or four times as strong as can be applied to the apple without injury to the foliage. There are a number of points on which we need light. For instance, we want some scientific men to visit orchards at the time of spraying, and test the strength of the solutions as actually applied to the trees. There are good reasons for believing that the poison applied from near the bottom of the barrel is often much stronger than that applied earlier. Paris green is much heavier than the liquid into which it is usually put; and unless the agitating apparatus works perfectly, the above result will appear, so that this factor would have to be taken into consideration. Or the solution may be applied of the standard strength, and a drying day may so evaporate the water as to leave it very strong. This sometimes injures the foliage. It would be well to know how it affects the bees. In combination with lime the arsenites (London purple and Paris green) may be applied of greater strength without injury to foliage (see Bulletin No. 35 of Cornell Experiment Station). Gillette, of the Iowa Experiment Station, says, "London purple can be used at least eight or ten times as strong without injury to foliage, if applied in common Bordeaux mixture instead of water." As yet, however, the Bordeaux mixture can not be thrown into the tops of tall trees. Again, the arsenites are of various degrees of solubility in water. Pure Paris green is called insoluble, but it is not. London purple is more soluble. Over 50 per cent of the arsenic in the London purple used at the Cornell station was soluble in water. It would be well to know which usually kills the bees—the part soluble in water or the solid particles. The difference in solubility of the poison may perhaps explain why Prof. Cook's bees were poisoned when Mr. Ashby's were not, with mixtures reported the same. Mr. Ashby thought the honey-bee in gathering nectar is able to reject the minute particles of foreign matter. Our best authorities, however, do not agree with him. If Mr. Ashby was not right, then the size of the particles of undissolved poison, no matter how weak the mixture, becomes important, as it will take a very small grain of arsenic to poison a bee. Taking weight only into consideration, it will require only a millionth part as much to poison a worker-bee as an average-sized man. In the case of Mr. Smith's bees, the brood is reported to have been poisoned quite as extensively as the mature bees. Dr. Lintner asked the convention if this great loss of brood could be accounted for by their being fed undigested pollen from the sprayed trees, as explained by Prof. Cook. The writer answered him that the pollen fed the worker larvæ was always partially digested in the stomach of the nurse-bees. Secretary Dadant promptly corrected (?) him by saying that after the fourth day, the larvæ are fed unchanged or undigested pollen, and therefore that the loss might be so accounted for. Prof. Cook and Dadant are mistaken in their statements and teachings, for it is a well-established fact that the worker larvæ do not receive undigested pollen at any period. I refer to this subject again because of its importance. If the larvæ were fed pollen just gathered from the poisoned trees, the explanation would be easy. During the first three days the larvæ receive nothing but digested food; and after that the same with honey added. If worker brood is poisoned at all by pollen it is by pollen that has been as far as the second stomach of the nurse-bees. If poisoned by honey fed to larvæ over three days old, our authorities would have us understand that such honey has been no further than the first stomach. In the human stomach, arsenic does not poison for some time, and we should expect not only equal but much greater immunity from poison in the honey-sac of the bee, since it is undoubtedly true, as Cheshire says, that true digestion does not commence here. Thus it is possible for bees to carry a deadly poison into the hive, and either feed it to their young or deposit it in the cells.

A few years ago one or more of our leading entomologists falsely accused the bees of puncturing grapes, and recommended the free use of poison. As no limit was given as to the strength of the poison to be administered, such advice was fraught with danger to the human family. Truly the time has come for putting more restrictions on the public use of poisons. The writer asked Dr. Lintner why he thought, if arsenical poisons of a certain strength so readily kill noxious insects, that they will not injure bees. He replied that, in the case of the the codling moth, as well as with some other insects, the effort was to kill the newly hatched larvæ and not the mature insects, and for this purpose a very weak poison would be as effective as a very much stronger one for full-grown insects. Now, within the bee-hive we have just as young larvæ that may be poisoned; and in the absence of further knowledge we may assume that a poison strong enough to kill the newly hatched apple-worm will likewise kill the newly hatched bee-worm, or larva. Thus, if the doctor's own statements are admitted, we have sufficient proof to condemn the practice of spraying during bloom, for the very weak arsenite that passes safely through the first stomach of the field-worker, or safely through the second stomach of the nurse-bee, will surely kill the tender larva when it reaches it. We have accepted the statements of our western friends, that the brood in Mr. Smith's hives was poisoned, as undoubtedly it was, but we have no conclusive proof of it. The brood, in the absence of the mature bees to feed and protect it, would have perished, and been dragged out in the same way. We need to know what part pollen has in this poisoning, whether it has any or every part. We also need to know how strong an arsenite the blossoms of fruit-trees will bear; for it may be that the blossoms are so much more tender than the foliage that it will be impossible to spray them with any thing strong enough to kill even the most tender insect.

There is plenty of material here for experiment; and the point is not, have we any thing to prove, but have we any one to prove it? The United States have a young man in their employ, located at the Michigan Agricultural College, and caring for its apiary of seventy or eighty colonies. It is not to be expected that, after looking after this number of stocks, he will have much time for experiment. The government has also an able man (Frank Benton) at Washington; but all the bees they furnish him for experimental purposes are some specimens preserved in alcohol. Dr. Lintner referred us to Rhode Island, the smallest State in the Union, as the one most likely to aid us. This brings us to the question, "What ought the States and general government to do for apiculture?" P. H. Elwood.

Starkville, N. Y.

[Our correspondent has indeed suggested some points on which we need more light, We most heartily commend Mr. J. H. Larrabee, of the Michigan Agricultural College. He has all the facilities at hand, and we believe he could furnish us some valuable data. This is a case where science and practice go hand in hand; and at what better place can these things be determined than at an experiment station, under the auspices of the State or national government?]

HOW THE BREEDING OF OUR BEES IS EFFECTED BY THE MATING HABITS OF QUEENS.

A NON-SWARMING STRAIN OF BEES; SHALL WE GET IT?

Every apiarist recognizes the necessity for good queens. Those reared under conditions where sufficient heat and food are absent are not wanted. Good, healthy, perfectly developed queens are longer-lived as well as more prolific. Thus when we breed and mate a queen-bee, we determine the character of a colony for a number of years. Besides desiring to breed the queens large and healthy, we wish to preserve certain qualities present in the ancestors. In the direction of color we have succeeded somewhat; but have we made any progress toward preserving the valuable traits of perfect wintering, honey-gathering, and non-swarming?

The Albany convention, without doubt, recognized the fact that we have made little or no progress in the breeding of non-swarming bees, as, in the scale of points that is adopted for judging the Italian bee, there is no mention made of the trait of non-swarming.

W. F. Clarke, in his essay read at the same convention, was of the opinion that swarming is not a normal condition. Pres. Elwood believed that there was a difference in strains (not races) of bees upon this point. The opinions held by both these gentlemen show that there is a belief lurking among apiarists that there is something in it. Though non-swarming strains of bees are often boomed for a while, we do not remember that they were ever a success. We of America are too anxious for the dollar of to-day to work patiently for a series of years to attain any degree of success with non-swarming bees. It is desirable that the queens of a whole apiary, and perhaps for miles around, be bred with this in view, and drones as well as queens selected.

Let us now consider why we have not succeeded better in our breeding efforts toward this end. The methods of queen-rearing in vogue in most apiaries are against any results ever being attained. Nearly all queens are reared from swarming cells, and the colonies that do not swarm do not survive. I believe that nine-tenths of all the queens in the land are bred under the swarming fever, and this has been kept up for generations uncounted. These tendencies, having thus existed, have become one with the instinct of the bee. Can we even doubt that they were implanted there at the creation to be for ever the means of preserving and extending the species? The swarming fever is not present, we know, except as developed by external causes. But have not the natural laws of selection weeded out those colonies swarming under adverse circumstances, till, as before, swarming under certain outside conditions has become coexistent with the natural instinct? The possibility of partially overcoming this tendency is not disputed. All who have tested the Carniolan bees acknowledge that they are great swarmers. Black bees do not, I am sure, swarm as much as Italians. Oh, yes! "there is a difference in strains of bees." Now, does not the existence of this difference prove that it is possible to breed out *somewhat* this habit of swarming? We have non-sitting strains of poultry; some breeds of sheep nearly always produce twins; and so it is, that, wherever an attempt has been made to breed with this end in view, progress has been made.

The greatest obstacle in the path of the apiarist desiring to breed carefully is the mating habits of the queen-bee. Whirling away on the wings of the wind, she seeks a suitor perhaps far from home, and the breeder hopes she has mated with a drone of a certain colony—perhaps knows she has mated with a yellow drone in localities where none but yellow bees are kept. The rest is generally all guesswork. The drone-trap can be made to control the flight of drones in an apiary; but great care and labor are necessary; and even then one does not know that a certain queen is mated with drones of a certain colony. From facts and incidents recounted often in our bee-papers, we find that the queen seems to *prefer* to mate with a drone from a distance. I have often found it so in my own experience.

Carrying out the Dzierzon theory of parthenogenesis we see that the drone is the son of its mother only, and may have quite different characteristics from the worker-bee of the same colony. To become acquainted with the drone and his character we must go back to the grandmother and her colony. This fact is worth remembering; yet how few, even of the most careful breeders, give it any attention!

Some years ago, as most of us remember, N. W. McLain conducted some experiments in the fertilization of queens in confinement. He reported success, both in a screen house and in a block held in the hand in certain cases. One successful operation is enough to give great hope, and furnish ground for future work; but the failure of careful queen-breeders in even obtaining one success by these methods, and the incredulity, I might almost have said ridicule, with which many regard the whole matter, has deterred me from undertaking any thing along this line. I have searched most thoroughly for other methods by which to accomplish the mating of queens with desired drones. No plan seems to me to promise more than that of compelling the queen and drones to fly earlier or later in the day than they would if allowed to fly when nature or instinct told them the mating would be surest.

If any way can be suggested, aside from the one just mentioned, as probable or even possible, to attain success, I should hope to devote myself most earnestly to making its success an assured fact.

As there is, without doubt, much more to be learned about the mating of the queen, we may, by a more careful study, discover something that will shed light upon the subject, and open a way to success. I should be glad to receive and arrange reports of such observations, and present the results to bee-keepers, and will try to learn something new in this direction myself.

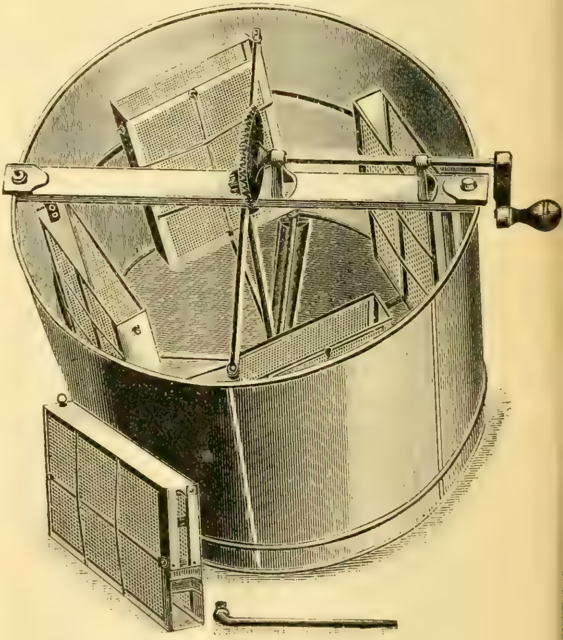
Should control of reproduction ever be secured, all these points in breeding, toward which we are striving, would become easy, and real improvement in the races of bees would be made; honey would be cheaper, and adulteration less. But who can tell the train of results that would follow? J. H. LARRABEE.

Agricultural College, Mich.

THE GOOLD REVERSIBLE HONEY-EXTRACTOR.

A NEW REVERSIBLE AUTOMATIC HONEY-EXTRACTOR.

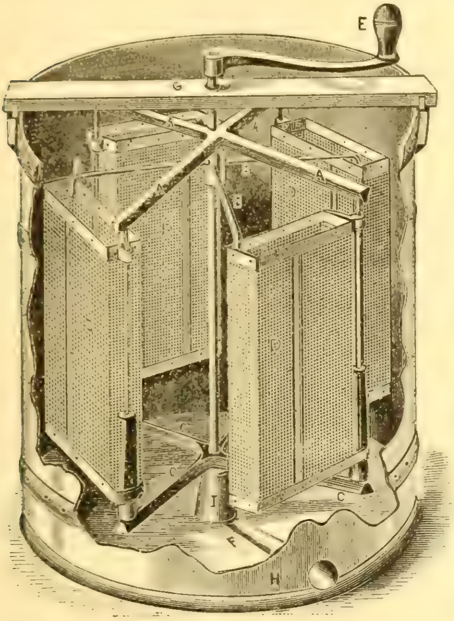
Herewith is an illustration of a reversible honey-extractor made and patented by E. L. Goold & Co., Brantford, Ontario. It can be made either as a two-frame or four-frame machine. For a two-frame Langstroth a can 23¼ inches in diameter is required; for a four-frame the diameter must be 27 inches. The baskets holding the combs have attached to them an eye through which a rod passes. Joining the upper and lower arm upon this rod the basket swings from side to side. There is, therefore, no loose hinge which can be thrown out of place. The method of reversing is by means of a rod running from the center of the can and center-shaft to basket, turning up and running in a groove shown in the basket lying outside of the can in the illustration. The end turned up has a small roller on it, which lessens friction. This is the part that does the reversing. The baskets are reversed as the motion is reversed, and the process with the two or four frames, as the case may be, must be simultaneous. This machine took the first prize at the Toronto industrial exhibition last fall for the best and most practical invention not hereto-


GOOLD'S NEW REVERSIBLE EXTRACTOR.

fore shown at that exhibition. There were five inventions competing. R. F. HOLTERMANN.

Brantford, Ontario, Can.

[The cut and description above does not make the principle of the extractor entirely plain. Reversing is caused by a positive lever motion. These levers radiating from the center shaft work in a slot in the bottom of the comb-pockets. Reversing the crank reverses the center shaft, which in turn revolves the levers a little way, and this causes the pockets to be swung around. Perhaps the idea will be understood a little better by the engraving which we made some months ago, of their first machine, only that the levers, in that case, were placed *above* the baskets, whereas they are now put under so as to be out of the way of the combs. The peculiar feature claimed for this extractor is, that the comb-pockets when at rest are out of the way of any supporting arms for putting in and removing combs; and although our friend Mr. Holtermann does not say so, we presume the manufacturer also dispenses with the chains.



We tested one of their extractors; but, for some reason, we were not able to make it work satisfactorily—at least, not as well as the Stanley in actual service in extracting. We have since been informed that the manufacturers, E. L. Goold & Co., Brantford, Ont., have overcome some of the defects encountered in their first machines.]

FOUL BROOD AND THE SALT CURE.

W. L. COGGSHALL EXPLAINS HIMSELF.

On page 84 Mr. M. M. Baldridge asks for my method of administering salt for foul brood. Mr. Baldridge need not have said that he was no novice, as I have always recognized him as an able and practical bee-keeper, for there is but little printed in the journals that has not been read by me in the last 25 years, although I am not quite 40 years old yet. I notice the editor threw cold water on the theory that salt or brine would cure foul brood; but I thought that the editor and Prof. Cook had tried it scientifically, so I said no more about it. I had tried it only in an experimental way four or five times with as many colonies, and it was effectual every time. I used it only twice, at intervals of ten days or two weeks, and each colony came out all right—no more brood died. Let me say right here that it might not have been foul brood. Well, if it was not, then I am out of the race.

What is the cause of foul brood or diseased brood? A great many say chilled brood is the first cause. Well, a man can not be a bee-keeper without being a little theoretical. My theory is, starvation, the bees not being able to get out in the spring and get what honey the young bees require to live on. This will cause diseased brood every time, and I have cured it *every* time, and it has never done me any harm.

Now for the cure (with me at least). Take a pail of soft lukewarm water, and dissolve what salt you can in it by stirring it ten minutes. It will not do any harm if it is strong enough to keep pork in. Take the combs out of the hives that are affected (I use the brushbroom that I use to brush the bees off when I extract, made of fine broom corn). I sprinkle the combs, bees, brood, and all, lightly. It will not hurt the brood at all. Once a week is often enough in extreme cases. In the meantime leave a chunk of salt as large as a hen's egg in front of each hive in the apiary. Be sure to put it right up close to the entrance, where it will dissolve, and the bees will get it. I usually keep a nail-keg or a barrel filled with sawdust, under the eaves of the bee-house. Put on a wide board, with salt in the top. It acts as a leach, and the dust holds the moisture. If it does not rain often, throw in a pailful of water, and you will have less trouble with the bees bothering your neighbors.

Now, brother bee-keepers, do not forget the above, and you will have less trouble. The easiest way to get along with trouble is not to get in.

I will tell you how I get rid of or cure another trouble that some of the bee-keepers have had ni removing the queen. They attribute the trouble to the queen, when it is not she at all. I refer to the brood not being capped up, and they sometimes hatch out without being capped. The cause is, that there are not enough young bees to cap over the brood. Remove two frames of brood, and replace them with two frames of hatching brood from another colony. I will admit, that removing the queen will accomplish it; therefore by the time you get another queen in there will be enough young bees hatched to cap over the remainder. If you should put the old queen into a strong colony you would generally find her a hustler; hence you condemn the old queen when it is not she at all—or, at least, that is my experience.

W. L. COGGSHALL.

West Groton, N. Y., Feb. 15.

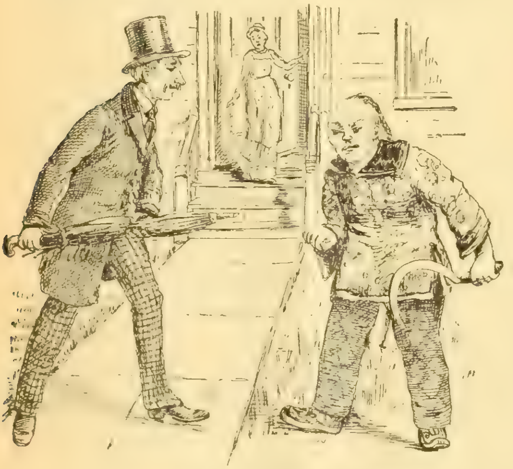
[We can not believe, friend C., that you had real foul brood. If it will not yield to strong antiseptics, as we have tried repeatedly, it is unlikely that it would to a mild antiseptic like salt. We have seen many forms of chilled brood that resembled, in every particular, foul brood, and yet this would always go off at the approach of warm weather. Now, if we had salted these combs we might have supposed that we had foul brood, and that salt cured it. In dealing with foul brood it is dangerous to experiment with unknown or partially tested remedies. As we have before explained, chilled brood or dead brood may be a favorable medium for the lodgment of the germs already floating in the air; but they can in no case give rise to their growth. All scientific authorities, as well as practical experience in the apiary, vouch for this.

We give our friend W. L. Coggshall the credit of being one of the brightest and most successful bee-keepers of York State, yet we fear he has been misled in his observations respecting foul brood. It has been quite conclusively proven that the disease can not start without germs. He is quite correct in regard to bare-headed brood.]

RAMBLE NO. 55.

IN NAPA VALLEY; A TENDERFOOT'S BLUNDERS AND MISTAKES IN CALIFORNIA.

John Chinaman is something of a factor on this coast. There are several thousand in Sacramento, and a visit to Chinatown is always a place of interest. We seem to be suddenly transported to a different clime, where we find people with an entirely different dress, language, and ways of doing business. The Chinese have almost complete control of the laundry business. Many are also employed as servants in private families, and many work on ranches, or rent ground for gardening purposes, at which they are adepts, not only at producing, but also in marketing, and their wagons are seen on the streets at all hours of the day. If they can not afford a wagon, a hand-cart is employed. They are very faithful, and not quarrelsome. But in our first experience with a Chinaman we found an exception. Our cousin's wife employed a Chinaman to cut the grass on the little lawn in front of the house for four bits (50 cts.). When he had cut about two-thirds of it he struck for higher wages, and wanted four bits more before he would finish the job. His actions while he flourished his sickle frightened the ladies, and the Rambler was called around to regulate the Chinaman. But, no; he still flourished his sickle, and shouted. "Melican man makee Chinaman workee too muchee. Me lelbow muchee tired. Me blely empty; me muchee hungly; me workee no more for four bits; me fightee Melican woman, Melican man." Our regulation was a failure except to prevent an attack upon the Melican woman. He was paid the four bits, and he went off muttering about Melican woman. Melican tenderfootee no sabe (understand) poor Chinaman. The Rambler procured a sickle and soon finished the job.



ME MUCHEE TIRED.

Chinamen, though adepts to learn American trades, have, fortunately, not taken to bee-keeping. About the extent of their work in this line is to put up boxes and catch absconding swarms, and sell them to some apiarist for from four to six bits. If they were expert bee-keepers we are not sure but they would monopolize the business in this State.

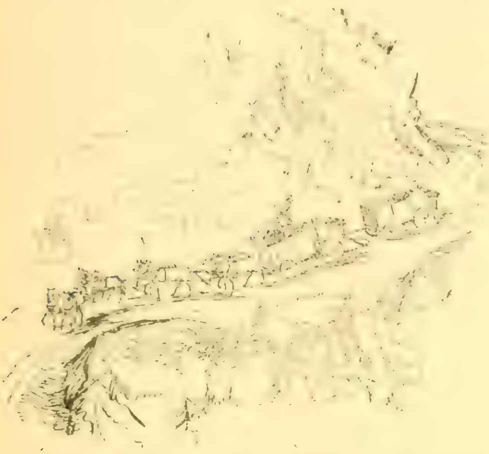
Being recognized as a tenderfoot by a Chinaman, a kind old lady, many years a resident of California, sought to pour oil on our wounded feelings by giving me lessons in California customs.

"Why! laws-a-me!" said she, "me and my old man made no end of blunders when we first came here. The first grocer's bill we received had 'spuds' charged to us in several places. Says I, 'William, I never ordered a spud—not one. Why, a spud is a sort of a round blunt stick to transplant beets with. The idee of putting spuds on a grocer's bill! it's outrageous. That grocer is a barefaced cheat;' and I got so excited that I posted right off to the grocer's, fully determined to give him a piece of my mind. I sailed through the door kinder lofty, and, says I, 'You sell spuds, do you?' 'Yes, m'am,' he says, kinder pert; 'will you have another sack—some fresh ones just in?' 'Spuds!' says I: 'spuds! Why,' says I, 'them's taters.' 'Why, yes,' said he, 'that's what tenderfeet call them, but they are spuds here.' I jest went right home a humbler and wiser person, and me'n William wouldn't have said a blamed word after that, if we'd been charged with bean-poles and a whole picket fence on our bills.

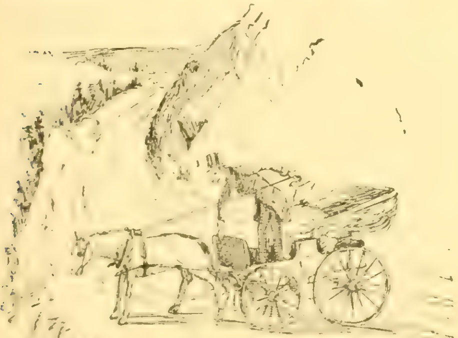
"And then I made another wretched mistake. I called upon a neighboring lady. I thought she appeared very sad. Finally she said her husband was in the corral; and, says I, just as sympathizing as I could, 'Poor man! what did he steal?' '*Steal!*' said she, with flashing eyes. 'Why, yes,' said I; 'ain't a corral a jail?' Her anger changed to laughter. Said she, 'Anybody'd know you're a tenderfoot. A corral is where we herd our horses and cattle.' 'Well,' says I, 'why can't they call it a cowyard then, and not rack the dictionary for hard names?' I felt much humbled, and William made no end of fun of me; and when he discovered that I lay awake half of the night resolving things, he said I would get to be as bad as the woman (I guess it was a man) who was so humble she had to wake up in the night to rest her face."

After this series of lessons I went forth again with renewed confidence and rambled to Napa Valley, which is well over in the Coast Range of mountains, about 70 miles west of Sacramento.

Again orchards of various kinds of fruits, and extensive vineyards, were encountered in the valley, while the hilltops were brown and dry. Raisin vineyards were quite numerous, and trays about two feet square were distributed between the rows, upon which the grapes were drying; after the sun had performed its work, the grapes were put into boxes and piled one on the other for the sweating process, after which they were sorted and layered into boxes ready for market. The products of many vineyards are used for wine-making, and the grapes were being "packed in" from the mountains. The term pack is used here altogether for the word "carry." "Pack in that board," "pack a swarm of bees from the canyon," etc., are often heard. As nearly all articles in early days were packed on mules, and are now in remote places, this term is therefore still used. Loads of fruit and other materials were met that would make a whole eastern family run outdoors and fall over the front gate to see. Eight horses attached to a huge wagon: in the rear, another wagon attached called a trail wagon: wabbling along, drawn by two chains, and directly behind the rear wheel, is the blocker, 18 inches long, and nearly a foot square. The break-lever runs up over six feet, to which a rope and small tackle-block is attached, and with which the driver can exert a powerful pressure on the wheels: and on some mountain roads it is also necessary to chain the trail-wagon wheels. The idea of using a trail wagon and all the teams ahead is to save the labor and expense of another driver. Expert drivers are paid over $100 per month. Some of these wagon trains were loaded with loose grapes, and these were thrown out with a pitchfork, upon arrival at the winery. Loads of honey and loads of bees are packed down the same way, and merchandise drawn back.



LOADS OF CALIFORNIA HONEY GOING TO MARKET.



WE CAME TO A STANDSTILL.

In Napa City I procured a livery rig, and went out toward the mountains, according to directions, to find Mrs. J. D. Enas. This was my first experience in hunting up a residence in the country in California, and it was somewhat educative. One of the liveryman's directions was, to inquire of any one, for everybody knew Mrs. E. My first inquiry was where two ways met, and I congratulated myself that one of the aforesaid teamsters was so near. But in answer to my question, the following lucid information was given. "No sabe English. You sabe Spanish?" Three teamsters in succession gave about the same answers. Two residences were called upon, but the families had just moved in, and I moved out and on up the mountain until the way became so wild, picturesque, and precipitous that my horse concluded he would stop. We counseled a while on the situation, and, concluding that no widow woman with promising sons and daughters would live in that place, we turned around; and, after some more tribulation with an Italian, also a "No sabe" man, I found the residence of Mrs. Enas, up through what some term the chapperal on the side of the mountain.

Mr. Enas came from New York to this mountain home, several years ago, seeking a healthful abode. Mr. Enas' name was familiar to the readers of the *American Bee Journal*, and I think GLEANINGS, several years ago, as a contributor to its columns. He had here at one time over 100 swarms of bees, produced honey, reared queens, and purchased an engine and machinery for the manufacture of hives and sections. But before he could do much at the latter business he was called to a higher realm. After his death, his wife and daughters, with commendable enterprise, manufactured foundation, and dealt in supplies, and are well known to the bee-keepers of California. They have but few swarms of bees now; but I was assured that this region was excellent for the production of honey. This is not a sage locality, and there are not many apiaries in this valley. The Rambler visited Mrs. E. with a view to purchasing the aforesaid machinery; but a change of plans sent me to a different portion of the State. I had no use for machinery, and I believe it is yet for sale.

After a very pleasant hour, with something less than a dozen charming ladies, good time was made down the mountain. I silently passed the swarthy Spaniard, and soon upon the streets of Napa City strode the RAMBLER.

THAT BOUNTY.

A CLEAR, CONCISE STATEMENT OF THE CASE, FROM THE PRESIDENT OF THE N. A. B. K. A.

In the discussion of the question whether the government ought to give a bounty to producers of honey as well as to producers of home-made sugar, in order that we may compete with Cuban or South American honey-producers, the fact seems to have been almost lost sight of that foreign honey is not admitted free, as in the case of sugar. There has been a specific duty of 20 cts. per gallon on honey imported, since 1864. This is equal to about one and two-thirds cents per pound. If honey had been put on the free list, then might we be pardoned for demanding a bounty. If we are not sufficiently protected now against Cuban honey, it seems to me the proper thing to do is to ask that the tariff be increased. It has been said, that comb honey did not need any bounty. If that is true, and if it is also true that our only important competitors in the production of extracted honey are the West Indies and South America, which honey I suppose does not enter into competition with our best Northern or California extracted for table use, it seems to me that we should endeavor to put on the market such an article as will recommend itself to the consumer as superior to table syrups. If it be argued that honey can not compete with sugar at the low price of the latter, I reply that it is true, and that honey never will compete with sugar, even at the same price, only to a limited degree. Bakers and manufacturers might use more if cheaper, and to a certain extent honey might take the place of syrups; but if we depend on realizing the millenium of our hopes in our generation, that is, the time when honey shall be a staple article in every family, and brought home from the grocery as regularly as sugar, we shall be disappointed.

There is no use to deny the fact that honey is a luxury. It isn't used in one family in a hundred to the extent that sugar is. It can not take the place of sugar in the culinary art as practiced in our time. We must not sell it at the price of sugar. A fine article of honey can no more be compared with sugar than the best home-made butter with oleomargarine. People want butter because they like it best, because it is more healthful, and because they detest a fraud. Oleo doesn't supply the place of good butter. The comparison is not strictly true, but people buy honey because it fills a want not supplied by sugar. If we produce genuine "gilt-edged" honey, and can get it before the people in perfect condition, they will not ask that it be sold for the price of sugar. The consumption of sugar in this country is so much greater than the home supply, that it was public policy to admit it free. Then to prevent the extinguishment of the cane-sugar industry, which is confined to a comparatively small area in the South, and to encourage the beet-sugar industry, which is yet in its infancy, a bounty of 2 cts. per pound is given by the government for all home-made sugar of a certain standard. As a honey-producing country we are not in the same condition. We produce honey nearly everywhere in all this immense heritage, but we do not yet produce enough to supply the people if it could be properly distributed. Our only competitor in comb honey is Canada, and we have not thought it necessary to put a tariff on that. I presume they find a better market at home and in the mother country for their surplus.

The question, then, narrows down to this: Do we need a bounty, other than what we now have in the protective tariff on extracted honey? I doubt it, but yet am willing to listen to arguments in favor of an increase.

Forest City, Iowa. EUGENE SECOR.

[We stated in our last issue that we would have to declare the discussion on bounties at an end; but the foregoing, coming from the source it does, and covering the whole matter of bounties so fairly and well, very fittingly closes up the discussion, and we are glad therefore to publish it.]

ABSORBENTS, NOT SEALED COVERS.

C. P. DADANT FURNISHES SOME GOOD ARGUMENTS FOR THE FORMER.

Friend Ernest:—As I notice by your editorial that you are becoming satisfied in your mind that sealed air-tight covers and no absorbents are necessary for successful wintering, I beg leave to give you our experience on the subject.

In the winter of 1878 we had very long protracted cold weather, lasting some six weeks, without a day warm enough for the bees to fly. At that time we had been making chaff hives, one story, with chaff cushion over the brood-chamber, and we had some 80 colonies located in this way, scattered in two or three of our different apiaries, the rest of our bees being in Langstroth-Quinby hive that we use. We then believed in a warm, air-tight covering over the brood-chamber. We used oilcloths over the frames, and leaves in the cap, wherever no chaff cushion was used.

It happened that a number of our oilcloths were rather worn, and had holes in them gnawed by the bees, while others were new; but all these cloths were otherwise air-tight, having been covered with propolis, and glued tight by the bees as customary. Now for the result. When a warm day came we found that all the hives that had air-tight cloths without holes were in a pitiful condition, the thick frost having thawed, and wet the bees so that most of them looked as though they had been in a bath. They would crawl out and die. In a few days the hives were empty and dity. Wherever the cloths had holes the moisture had ascended into the chaff or leaves, and the bees were dry. Those hives which had the worst cloth covers were the driest. It was so uniform, that, after opening a number of hives, we could tell before raising the cloth what would be the condition of the bees. Remember, this was in a season when all the hives, without exception, were suffering from diarrhea, and when a number of colonies had died outright from starvation, being unable to reach the honey placed on the side of the cluster. But we were shown plainly, that, when the combs were closely covered with absorbing material that allowed the moisture to pass out without losing the heat, the ultimate result was a clean hive, dry combs, and healthier bees. True, you will find plenty of seasons when a tight covering will do no harm; and it is an accepted rule among old bee-keepers that a hive which shows running water at the entrance during a middling cold day is sure to be healthy. In this case the condensation is not in great amount: it is only in the corners, away from the cluster, and the least rise in temperatrue allows it to melt and pass out. But let a very hard, protracted winter come, the frost which has formed in the corners gains steadily till it reaches the entire top of the hive; the dead bees obstruct the floor and prevent the draining of what does thaw. Then in milder days when the temperature is still too cold for a flight, the thawing frost wets a part of the bees, makes them restless, and the colony is doomed if the weather turns cold again. Perhaps we are mistaken in our conclusions; perhaps there are other things to be taken into consideration; but we have passed through several other winters since the date mentioned—those of 1880 and 1884, and we have only strengthened our belief by all the remarks that we have made. Even in such a winter as the present, there are people whose bees suffer from this very cause, wet combs, and always in instances where the ceiling is air and water tight. Facts are stubborn things, for they overthrow some of the best constructed arguments.

Now allow me to quote an authority to whom we all go back occasionally, and who was acknowledged one of the most careful observers in his time—father Langstroth.

> In March, 1856, I lost some of my best colonies under the following circumstances: The winter had been intensely cold, and the hives, having no upward ventilation, were filled with frost, and, in some instances, the ice on their glass sides was nearly a quarter of an inch thick. A few days of mild weather, in which the frost began to thaw, were followed by a temperature below zero, accompanied by furious winds; and in many of the hives, the bees which were still wet from the thaw were frozen together in an almost solid mass.

We are often wiser than our elders, and so were we on this subject; for although we had read the above passage we were not convinced of its importance till we bought our experience by actual losses. These are the facts that I was about to give you last December, face to face in your apiary, when I was interrupted by that miserable photographer. Please don't make up your mind that I am wrong till we have another hard winter, and you try my way, comparatively with yours on a large scale. Hard winters are oftener found in the bee-keeper's yard than millions in his pocket. C. P. Dadant.

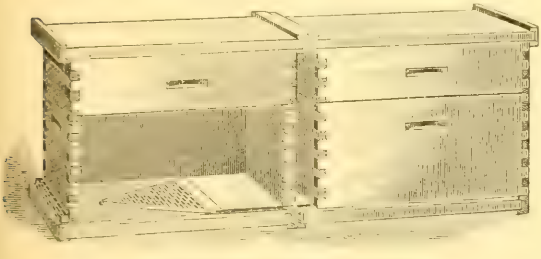
Hamilton, Ill., Mar. 5.

[Facts are stubborn things, and we must yet wait and compare results. While nearly all the testimony is in favor of sealed covers as against absorbents, perhaps we had better go slow. We are still open to conviction either way.]

PRATT'S SELF-HIVER.

AN IMPROVEMENT OVER ALL OTHERS.

I am one of those bee-keepers who believe that the matter of swarming will be solved through some controlling device, such as an automatic hiver. The most serious drawback in working a large number of colonies for comb honey in several different yards is the inability to control swarming. It has long been my belief, that, when a large number of colonies are worked in outyards, it would be more profitable to throw the working force of three strong colonies into one hive provided with plenty of storage room and ventilation, so as to decrease the amount of labor and confine the swarming fever to one-third of the colonies, instead of allowing it to prevail throughout the entire yard. I will not attempt to explain a method of procedure along this channel, but will confine myself to the text, and endeavor to show the readers how I have successfully controlled swarming in my own and another yard.



PRATT'S SWARM-HIVER.

Since 1889 I have been experimenting with automatic swarm-hiving devices, and I have at last contrived a plan which I shall guarantee to work with perfect satisfaction in the hands of any bee-keeper. My device is patented, but I trust that will not prejudice the readers of Gleanings against it.

The great trouble with all the swarmers yet brought out is *trapping the queen away from the entrance*, to which the bees have been accustomed to work through. Mr. Dibbern's modification of the Alley swarmer will work about as he says it will. I have tried that plan, and would have adopted it, with Mr. Alley's consent, had I not discovered a surer one.

It is a serious drawback to have one hive rest upon another, besides the amount of machinery required to fit all sizes and styles of hives found in any ordinary yard, to say nothing of the close adjustment necessary, and the expense and bother of so many parts.

By referring to the engraving you will readily see how my swarm-hiving device is attached to one of Mr. Root's Dovetailed hives for illustration. The hive to receive the swarm is placed in front of the colony expected to swarm. The front ends of both bottom-boards are abutted so as to form a continuous passage from the swarming colony through the new hive. A little block is placed into the open space between the two hives, so that the bees can not escape from that way. By covering this space with wire screen, the ventilation of the hives will be sufficient for the strongest colonies.

With this arrangement the bees are forced to go and come through the new hive with their honey and pollen. A triangular zinc bee-escape is now placed on the bottom-board inside the new hive, with its open base close up against the entrance to the colony expected to swarm. This escape is made of perforated zinc, and has a hole at its apex for the queen to escape through. The outside entrance to the new hive is covered with an ordinary excluder, so that the queen can not escape from within the new hive after she passes the zinc escape.

When the swarm issues, the bees rush pell-mell through the zinc escape and empty hive into the air. The queen, on finding she can not get through the zinc at the entrance, will pass down the escape, and is led through the hole in the apex, when she will quickly enter the new hive, where she will be effectually trapped. All the exits to the new hive being covered with excluding zinc, the queen is made a prisoner inside the new hive; and as soon as the bees that have swarmed into the air miss their queen, back they will come to the old entrance, as their instinct dictates, thus automatically hiving themselves in the new hive. A few of the older bees will work back into the parent hive, but the bulk of the swarm will remain with the queen. If empty frames have been inserted they will start at once to build comb and set up housekeeping in the new hive. If left in this position eight or ten days, a large number of young bees that have hatched from the parent colony will work out into the new hive. If the supers were shifted on to the new hive, a considerable quantity of honey would be carried there. The bee-keeper now has the option of increase or not, for there are 13 days before more swarming, which gives him a chance to manipulate the old colony as he sees fit. If he desires increase he can set the new swarm back on the old stand and place the old colony on a new stand, after shaking the bees off one or two combs to give the swarm sufficient strength to store box honey. If he does not desire increase it will do no harm to allow the hives to stand as they are a few days, when he can either cut out all the cells or place the old hive on top of the new one, with a bee-escape or zinc honey-board between, or leave them until a day or two before the young queens hatch, when he can shake off all the bees and place the extra combs around on other hives.

The device will need very little if any attention. The principle employed, I believe, is the correct one; i. e., trapping the queen inside the new hive, and causing the bees to join her by the entrance they have so long been accustomed to going in and out of during their work daily. I need not say that the principle is a new one, and bound to work perfectly when properly arranged. I shall endeavor to make the contrivance as light as possible, so as to be safely and cheaply sent in the mails.

Beverly, Mass., Feb. 9. E. L. Pratt.

[We have all along been a little doubtful of the utility of automatic swarmers; but when Mr. Pratt explained to us the principle of his swarmer by which the bees are automatically caught in a hive, the entrance to which they have long been accustomed, we were interested at once. It is not wise to be certain of any thing we have never tried; but we believe this is a little ahead of, and cheaper than, all the others. Of all other automatic swarmers, the bees are obliged to go with the queen to a strange entrance and a strange hive, and it is owing to this fact that so few bees *remain* in the new lodgings provided for them.]

A BEE-KEEPER IN BAD LUCK.

A LAUGHABLE INCIDENT.

A German bee-journal, *Blætter fur Bienenzucht*, has the following story which has been translated into the French *Revue*, and is good enough, I think, to have an English setting.

C. C. MILLER.

At the apicultural exposition at B., Antony Bumke became the happy possessor of an Italian queen. How he admired it with its eyes of gold and its abdomen of yellow and black rings! In order to take it to his hive, he made a box like a Swedish match-box, only, instead of a wooden cover, he used a cover of paper pierced full of little holes. With the queen he imprisoned four workers. "She'll not be so lonesome," said this sensible young man.

What fine things he promised himself with the progeny of this queen, and with what joy he felt the little box in his trousers pocket! But he must, before taking the train for home, send a telegram to his betrothed and his future mother-in-law, whom he expects to greet for a few moments, as the train passes the second station. Time presses, the train is about to start. The engine whistles, Antony makes rapid strides across the platform, and jumps into the first coach he comes to, the coaches being still of the ancient pattern that contain only a few passengers, these few being locked in by the guard, like so many prisoners. In his headlong haste he stumbles over the extended legs of an old gentleman, and his head strikes forcibly against the sharp knees of a precise-looking spinster, whose fright is expressed by loud cries. With a thousand apologies he succeeds in seating himself, when he overhears the hardly suppressed remark, "The fellow is drunk," a remark which only deepens the blushes of the bashful young man.

He seeks, by his tranquility and upright bearing, to efface this unjust opinion, but, unfortunately, he feels a strong tickling on his right leg. Furtively, Antony feels over the affected part, and in so doing brushes against his next neighbor, a big, Jewish butcher's wife.

"Don't let that happen again," she snapped out.

Antony reddened to the ears anew; but the next instant, with a wild look, he sprang into the air.

"You ought to be ashamed of yourself, to come among decent people in your present condition," said the old gentleman with threatening looks. "Such things ought not to be tolerated. It's an outrage!" he growled from his corner.

At this moment Antony feels anew a violent stinging. Summoning all his courage he bravely plunges his hand into his pocket. Mercy! he is not mistaken; the box was broken, and the cover crushed at the time of his fall when entering the coach, and there is no trace of either queen or workers.

And now that sting in two places! Antony utters a savage cry and leaps anew into the air.

"Mercy on us! He's going crazy," says the butcher's wife.

"Conductor! Conductor! let us out. There's a madman here," cry all the passengers.

Antony Bumke emits piercing yells.

"In the name of heaven! he's going into a furious delirium!" says the spinster.

"Silence! silence!" commands the old gentleman. Then turning to Antony he says, "What's the matter? Tell us."

"I can't stand it any longer," cries Antony, "they are gone—every one of them! they sting—I am stung already! Leave the coach! It is very important that I should be left alone. Otherwise you may all be stung."

"He is mad! An escaped madman! Conductor!" cry all the passengers, beside themselves.

The conductor appears at the window. "Presently, ladies and gentlemen; the train is just going to stop. What! An escaped lunatic? The matter shall be looked into immediately."

The engine shrieks—station N. Full of affright they all precipitate themselves from the coach; and the station-master, informed by the conductor, slowly approaches; and when the passengers are all out but Antony he carefully closes the door, posts himself before the open window, and commences his examination. "So this is an escape. You acknowledge it?"

"Without doubt—certainly; they've all escaped," declares Antony, very much agitated.

"All?" says the station-master. "How many of them were there?"

"Five," says Antony, groaning; "four workers—their loss wasn't much—but the queen is gone too."

"What? A queen? What was she like?" said the station-master in a bantering tone.

"Oh! she had eyes of gold, and the back part of her body was covered with rings of yellow and black."

"Beautiful queen!" said the station-master, laughing. "And what were the others like?"

"Why, just like all workers. One bee is just like another."

"Come, now, keep your thoughts together, young man, and don't go to getting bees in your head again," said the station-master severely.

"I haven't them in my head," said Antony, groaning, "but in—"

"And where then?" said the station-master, laughing.

"In my—in my—pants!" This last word Antony whispered in the ear of his interlocutor. "I had a hole in my pocket—they slipped through it."

"What slipped through?" asked the confused station-master.

"Why, the queen and the four workers."

"Ha! ha! ha! a queen and four workmen in his—ha! ha! ha!" laughed the station-master. "Come, be quiet. What are you crying about still?"

"Oh! oh!" cried Antony; "I can't stand it any longer."

The bell rings. Laughing as he goes, the station-master directs his steps to the telegraph operator to give orders to the next station concerning "the lunatic."

The train is in motion. Antony is alone. He can no longer stand those stings. Rapidly taking his determination, he takes off his pantaloons and approaches the window. Three bees gaily soar aloft into the air, but two stick tightly to the pantaloons. However, they must be got off, and Antony shakes his pantaloons out of the window. "A pleasant journey to you, miserable queen," said he dolorously, when, at that instant, whiz! went the express train by on the other track. It seemed to the poor fellow, more dead than alive, that his head was torn away, but it was only his pantaloons that the express train had carried away triumphantly, and for good.

Antony Bunke stood petrified. It was night in his soul. He remained some time without thought and without —. The muse itself, horrified, veils its face.

Again a whistle, piercing, to make one shiver to the marrow. To Antony it sounds like a funeral-knell. The train stops boldly before a platform filled with people. They are there, his intended, his future mother-in-law, with many of their acquaintances. Ashamed, he hides himself, for the door has just been opened. The conductor appears; he makes a sign, and the station-master approaches with two officers. They seize him.

"He has dressed himself up now," said the conductor, laughing.

"Silence!" said the officer. "Bring a cloak."

The second officer takes off his cloak and puts it on Antony. A struggle ensues, and the miserable youth succeeds in jumping out of the coach. The officer seizes him; he tears away, and the cloak remains in the hands of the officers. A cry escapes from two mouths. Blushing with shame, his intended turns away her head; the future mother-in-law is turned into a pillar of salt. Before their eyes Antony is again seized by his persecutors, and shut in with them in a charitable closed carriage.

By mail the thing ought to have been explained away at a later date. But Antony Bunke never had any further desire to try new races of bees, nor to attend bee-shows, and equally he never revisited his enamorata, for she wrote him that she had no desire to marry a sans-culotte.

Ah, yes; he was a bee-keeper in bad luck.

THE BEE PARALYSIS.

A GERMINAL DISEASE, AND HOW TO CURE IT BY ANTISEPTICS.

Judging from the reports found in the apicultural magazines, we may believe that this disease was quite general throughout the country during the summer of 1891. Practically the same symptoms are described by correspondents as they have written from different localities. The points have been as follows: First, the queens have appeared healthy, and there has been no diminution of egg-laying. Second, the usual attention to brood-rearing upon the part of the colony has been observed. Third, even greater fecundity upon the part of the queen, and greater alacrity among the brood-rearers have been noticed, presumably because the colony was stimulated to greater activity in order that the requisite number of bees might be kept up, in view of the untimely death of many of those newly hatched. Fourth, the death-stricken young bees have had the black and yellow colors very distinctly marked, and a peculiar gloss which is quite unnatural, and have also failed to possess the hairy and plump appearance found in a healthy young bee. Fifth, they died in large numbers, very few within but mostly at the entrances, or just in front of the hive. Sixth, there was universally a peculiar, sour, decaying animal odor, offensive as one opened a hive or brought one of those dead bees to the nostril. Seventh, they gathered honey as expeditiously and well as ever, storing more in the surplus sections than usual, seeming to have a fear to put it in the brood-chamber, and, at the close of the season, after brood-rearing ceased, were found to be in poor condition, perhaps having to be fed.

These are the statements that have been made from time to time in GLEANINGS and other papers during the past year. We observed and tabulated them, for we had the disease to look after among our own bees, and were desirous of information, and anxious to impart what might be reliable to our fellows in the craft. They agree with our own experience during the past season. We had two colonies with this clearly defined and unmistakable malady. We cured one at once by putting all the bees temporarily into another hive, and immersing every frame in a warm weak solution of Lewis' concentrated lye, having washed first the interior of the hive with the same, rinsing all off well with warm water, and wiping and drying in the house. This killed every egg and unsealed larva, but, as far as we were able to discern, the capped brood was unharmed. The proportions we used, and the processes, were as follows: Three ordinary pails of water, as warm as the hand would bear, were put into a tub, and three level teaspoonfuls of the lye, which we previously dissolved in a pint of cold water, and then added. We did the task as quickly as possible, and had all the bees back in the hive within two hours. The queen began at once to lay in the renovated combs, and the colony thrived thenceforth, going into winter quarters in fine condition. To make this report good to date for the benefit of other experimenters and all our fraternity of bee-lovers, we have just been to the cellar and investigated this colony, and find them to-day (Feb. 1) in prime order, the queen still living and full of life. Perhaps we should say that we never noticed any ill effects from the lye-killed larvæ. They were all disposed of by the bees themselves, except a few that we picked out with a small two-tined fork.

After reading about the salt cure, recommended by some apiculturists, we tried it upon the other infected colony by simply putting a layer of salt upon the entrance, so that the bees had to crawl over it to get into the hive, or when making their exit. We think that this test was made too late for us to be sure of its effect, but will say that the disease gradually abated until we thought it was cured. Upon two or three occasions we carefully looked for the queen of this latter colony; but, failing to find her, we supposed she was dead, and put the colony in the cellar with the expectation of getting a new queen in the spring. But recently, to our surprise and gratification, we found her, apparently well and full of vigor.

In both these cases the indications warrant the supposition that the disease does not affect either the usefulness or the life of the queens. Moreover, from the look of a colony of bees, we have been unable to discern any clew to the origin of this dread disease, every ordinary sign of prosperity being visible except the strange death-losses. From the chemically purifying and disinfecting character of lye, as well as salt, we seem to be justified in supposing it to be a bacterial fatality, if their use has proven beneficial. Undoubtedly the lye solution above spoken of would kill every particle of even capped brood in a hive, if the frames were left long in it, or were put back into the hive not having been well rinsed off. Further, lye is one of the strongest of germicides, and, as in human bacterial diseases, the remedy will kill both patient and germs unless administered with caution. The processes above enumerated would also prove very tedious for an extensive apiarist. For this reason we hope it may be verified that common salt alone is a specific, since the material is always easy of access, and quickly and simply used, causing no labor to the bee-keeper, no time, delays, or losses to the bees. If it should prove that salt, either solid or in liquid, is only a palliative and not a specific, we should incline to the belief that bee-keepers can not do better for the coming season, or until something less laborious is discovered, than to use the lye solution here recommended. But on the ground of the germicidal qualifications of lye, we will venture to say that other chemicals known to have the same effect upon bacteria and parasites, such as camphor, thymol, creosote, carbolic acid, tar, etc., will cure bee paralysis if proper solutions of them are applied to hives and frames, and all thoroughly cleansed before being given again to the bees. We believe this to be a germ fatality. If opportunity offers the coming season, we shall try some of these, as well as make ourself more certain as to the curative properties of salt. Meanwhile we feel sure of the lye solution, and can recommend it until something better is found. REV. T. C. POTTER.

Cedar Falls, Iowa, Feb. 3.

THE HASTY SUGAR-HONEY MATTER.

WILL NOT THE DISCUSSION OF ADULTERATION BE EQUALLY HARMFUL?

Friend Ernest:—I wish to thank you for the very fair manner in which you criticise the course of the *Review* in admitting the Hasty article on the feeding of sugar to produce comb honey. Surely, nothing could be fairer than your treatment of the subject; but, with your permission, I should like to call attention to what *seems* like an inconsistency in your course. In the very same issue you publish an article from Mr. Byron Walker, in which he states that glucose can be bought for only two cents a pound, and explains the ease with which honey adulterated with it can be sold. Have you no fears that dishonest people will be led into adulteration by thus explaining how easily the matter may be accomplished? You may say that you mention the practice only to condemn. True. But condemnation does not deter dishonest men from doing wrong. If anybody can *do* any thing to stop adulteration, I am with him hand and glove (I am glad to see you intimate that *you* are going to *do* something); but to be criticised for giving an article explaining how a man might honestly make a profit out of his bees in a poor season, criticised because dishonest men might deceive people by the same method, and then have my critic turn about and publish an article showing the ease and profit with which honey may be adulterated, seems—well, how does it seem?

I am glad to see, Ernest, that you have so far advanced in this subject that you have had enter your mind the idea of: "Will it pay?" I am also glad to see that you so stoutly maintain that, while Bro. Hasty and myself may be lacking in good judgment, we are *honest.* But the Hasty article has been published; it is beyond recall; the cat is out of the bag; there is no use of attempting to crowd her back in; in other words, let us lay aside all prejudice and preconceived notions upon the subject. So far there has been simply "holy horror" at the ideas advanced by friend Hasty. No one has seemed to give the matter a sober second thought. We are so largely creatures of education, that, when any one brings up something contrary to our established views and methods, we are shocked. In the Dark Ages men were tortured and burned at the stake because they were heretics. The very ideas that were then heresy are now popular. This may be a strong illustration, but I think it a fair one. The time may come (mind, I don't say it *will*) when sugar-honey will be an article of commerce. I am willing to admit that the world is not yet ready for it, but the time *may* come. When it was first proposed to use foundation in surplus honey, what a hue and cry there was raised against it! "It was not the natural comb;" "it filled the consumer's mouth with wax;" "it would *ruin* the honey market." It proved to be the "foundation" upon which rested successful comb-honey production. Hence, I say, don't be too hasty in your judgment upon new ideas.

Flint, Mich., Mar. 5. W. Z. HUTCHINSON.

[It is a great pleasure to deal in discussion with such a fair and candid man as our brother-editor Mr. Hutchinson. Well, about that Byron Walker article. It may be that we have been doing just what we had been condemning in another; but it occurs to us that there is a distinction between the Byron Walker article and that of Mr. Hasty. The former calls attention to a practice that is *already in existence*, and we gave publicity to it for the purpose of letting bee-keepers know the real facts in order that they might unitedly combat the evil. The Hasty article proposed something that was not yet in existence, and which at most was a matter of experiment; that is, it was exceedingly doubtful as to whether the practice could be made to pay. While the article of Mr. Hasty *might* do damage, the probabilities are that it will not. Bee-keepers are too honest to make a bad use of it, even if feasible, and we have more than once had occasion to refer to the fact that our industry is made up, as a general rule, of square men. Dr. Miller has a Straw in this issue which points in the same direction.]

WAX SECRETION.

MR. FRANCE ARGUES THAT THE OLD BEES AND NOT THE YOUNG DO THE MOST OF IT.

I wish to make a few remarks about some replies of Mr. Doolittle and Mr. Hasty in regard to an article of mine in the Oct. 1st GLEANINGS, about wax secretion, etc. Mr. D. remarks that I say that I hived a fair-sized swarm. It was just that, and nothing more—at any rate, it came from a hive of 16 L. frames. My home yard is all in L.-frame hives, 8 frames to each set. I work them during the extracting season three stories high; but this swarm came out before I got the third set of combs on. There was not over a peck measure full of bees to start with; and a three-story L. hive with 8 frames in a set is not so very large a place for a peck of bees in hot weather. It is only four combs more than a two-story ten-frame hive. But, be that as it may, 45 days would come around just as soon for a large swarm as for a small one.

As for the young bees secreting all the wax, I am satisfied that it is a mistaken notion. I believe that bees will secrete wax as long as they live; in fact, I am of the opinion that the old secrete more wax than the young ones. In the first place, in order to secrete wax the bees have to stay at home with their sacs full of honey, that wax secretion may go on. Now, in all animated nature is it the old or young that lie around idle? Young children, and all young living things are apt to get out as early as they can, and exercise themselves; and would a young bee be contented to stay in the house during its youth and do housework? I can not believe it. I believe they go out as soon as they are able to do so. They want to go out and see the world—it's natural. On the other hand, the old bees, like other old folks, would be more inclined to stay at home and do the housework. I simply throw these thoughts out as a suggestion. Who will prove me wrong?

As for Mr. Hasty's remarks, they cover about the same grounds that Mr. D. does, except the possibility of some stray swarm joining the experimental colony. I think Mr. Hasty or any other observing bee-man would quickly discover any thing of that kind if it should happen. But Mr. H. is wrong in his conjectures about the failure of the honey-flow soon after the swarm was hived. The swarm was hived June 10; the honey was ample until July 20, when the basswood gave out. At that time I gave the bees in pepperbox feeders 6 lbs. of honey, and kept honey in the feeders all the time after that date. Aug. 24 I took away brood for the last time, and then let them go as they pleased and hatch brood. Of course, it must have been about the 14th of September before any brood would hatch. About that time I fixed my yard for winter, and there were a few bees there yet, and some few hatching. How long they held out I don't know, as I did not look again.

Now, my friends, if life is spared until next summer I mean to try some more experiments; and I should like to have others do the same. Let us learn all we can, and let each one prove for himself any point that he or she is interested in. We have 20 acres of land, shaped about like a brick. Now, as far as possible from the bee-yard, and from each other, as I can, I intend to place two or three hives to experiment with. Let others who can, try for themselves, if they are interested in such matters.

Platteville, Wis., Jan. 28. E. FRANCE.

LADIES' CONVERSAZIONE.

PLANTING USEFUL VS. BAD WEEDS FOR BEES.

If I were a man, and owned a farm, I think I would plant for bees if I had as many as 50 or 100 colonies. Mr. Axtell says it does not pay; but I believe it would pay—not so much in the amount of surplus stored from such flowers, but in the good it would do the colonies in keeping them thrifty and built up between the honey-harvests. I would give a little time to it each year, and see to it that it was done right. If I owned a large farm, and had plenty of ground to spare, I would set apart an acre or more for such purpose; but if I could thoroughly till what I had I would utilize the waste lands, the fence-corners, and next to the hedges. I would not send a hand out and have high-priced seed scattered along the roadsides, in the stiff sods, nor along the fences that are already overgrown with weeds, as I should not expect it would thus pay; but I would take the spade and hoe, and clean out the fence-corners, and plant such seeds as are tried and do well in each locality—such bee-plants as will hold their own after being planted—perennials that will blossom each year at a time when the clovers or other farm crops are not in blossom. I would hoe out the useless weeds close to the hedges or fences, where they can not be cultivated for farm crops. I would plant such seeds as catnip, Simpson plant, hoarhound, pleurisy-root, sweet clover, etc. How much better to grow such plants than so many useless weeds that yield no honey, and are a nuisance to the farmer! I would have a regular string of flowers all around my farm, and near the cross-fences besides. Some argue that weeds thus grown would not be good for the fence or hedge; but they could not be worse than useless weeds or the grasses that grow in the cultivated fields next to the fences, that animals can not reach to eat off. I would not sow bee-plants along the fences of neighbors who would object to such plants, or who annually mow down the weeds in front of their premises. There are many neighbors who are so accommodating as to aid a brother bee-keeper by giving consent to having such plants as sweet clover sown along the roadsides, as it is a beautiful plant, both in the foliage and blossom, and is much more sightly than many of the weeds often seen growing along the roads, and which furnish nothing to beast or bee.

Down near the timber, near where our out-apiary is located, are large patches of burdock and Canada thistles, both in the fields and along the roadsides. How much better to destroy such plants, and raise honey-plants that are not such noxious weeds! I can advise, but I can not practice the above, though I believe it would pay largely, both to bee-keepers and to the farmers.

LACK OF VENTILATION FOR CELLAR WINTERING; HONEY-DEW, AND ITS EFFECTS IN THE CELLAR.

In GLEANINGS, page 133, you print my article about our bees being so uneasy. We did have to take out another cellar window that was plastered up, and it was surprising how soon they quieted down. We can see no difference in the number of dead bees swept up in front of the hives wintering on honey-dew, and those wintering on sugar syrup. The bees are more quiet than they were the fore part of the winter, but they throw out twice the dead bees they have some other winters; but they show no signs of dysentry on the fronts of their hives. I was looking this morning, and saw no hives thus specked. Those wintered out of doors have had several good flights during the winter. Mr. Tilly, who has 30 colonies, and winters outdoors, says that there are but few dead bees in front of his hives, and his bees flew as if they were strong, a few days since. MRS. L. C. AXTELL.

Roseville, Ill., Feb. 20.

[We are rapidly coming to the conclusion that bees need more ventilation in the cellar than many suppose. We notice that there is less flying out in proportion to the number of colonies when there is a small number in the cellar than when there are many. High temperature may have some effect; but, usually, high temperature is accompanied by a lack of circulation in the air, and hence the result is impure air, and restlessness on the part of the bees.]

A KIND OF FIXED-DISTANCE HIVE THAT IS NOT OF THE RIGHT SORT.

I wish some of the advocates of "fixed distances" and "handling hives instead of frames" had some hives I was obliged to use last year. I knew I didn't want them, as soon as I saw them, but had to have something, and they were all I could get at the time. The ends of frames, instead of resting on a tin rabbet, fit into a notched piece of wood, and another notched piece across the bottom of the hive holds the bottom of the frames tight. I could get along with them while the hives were new, by handling the frames over quite often; but I tell you, those hives have fixed distance and no mistake. I believe they would stay fixed, too, if the hives were rolled over and over down hill for half a mile. They are altogether too "fixed" to suit me; for, like Mrs. Atchley in *Nebraska Bee-keeper*, I don't care about "going down the ladder."

I am sometimes asked why I am a bee-keeper. Well, it was neither from choice nor because of necessity, but the result of what most people would call "a bad bargain." But as "all things work together for good," I suppose it was not an accident, after all. Perhaps I'll tell the story some time in the future.

MRS. A. L. HULLENBECK.

Millard, Neb., Feb. 17.

[There are some kinds of fixed distances that are positively intolerable, and such a kind as you describe is one of that sort, as we know from a brief experience; but there are other kinds that are positively delightful.]

HIGH-PRESSURE GARDENING.

BY A. I. ROOT.

THE TOMATO INDUSTRY OF CRYSTAL SPRINGS, MISS.

CLOTH INSTEAD OF GLASS FOR COLD-FRAMES.

On the morning of Feb. 27, 1892, I opened my eyes in a pleasant room in the hospitable home of J. W. Day, the author of the book on tomato culture in the South. Brother Day soon came in with an armful of long pine kindling, and proceeded to build such a nice big fire in the spacious fireplace that I commenced a remonstrance at the waste of so much nice fuel, solely for *me* to dress by. But he replied he had more than he wanted or could get rid of; and, to tell the truth, he has pine timber by the *hundred acres*. Breakfast for a family of eight children was, like the fuel, in great *abundance* and of excellent *quality*. I never ate any canned peaches before equal to friend Day's; and when I found he had *400 acres* of young peach-trees, I felt in a hurry to get out to see *them* as well as the tomatoes. In coming into Crystal Springs the day before, I noted the long canvas-covered cold-frames that began to dot the fields with their long strips of white, even when we were miles away from Crystal Springs. The exceeding whiteness of the cloth is explained by the fact that a great part of them are covered with *new* white cloth, for it is only since friend Day's venture has proved a success that almost every one around him has decided to go into it more or less. It is exactly like the lettuce business around friend Davis' at Grand Rapids, Mich. Well, we are having a great lot of pictures made, illustrating this new industry; but as they will make my description too late for this season I am going to tell you in advance how to make a cloth cold-frame to protect tomato and other plants after they are transplanted the first time from the seed-bed.

The cloth, which is rather thick stout cotton, is used in the place of glass; but as there was quite a frost on the morning I have described, the beds had all been covered the night before with pine straw and forest-leaves spread evenly over the canvas cover. Friend Day has over a mile in length, altogether, of these beds, and each one is double width, taking cloth 2½ yards wide on each side. Such frames have been in use more or less for some years back in different localities; but, if I am correct, friend D. first used the pole to roll the cloth on. I saw one of his men roll up the canvas *alone*, on a bed *150 feet long*.

I need not tell you of the immense saving of time and strength, compared with handling glazed sash. It is true, cloth does not give the protection nor the heat that sash does; but by taking a little more time one can start seeds of even tomatoes and egg and *pepper* plants under cloth. Friend Day has perhaps a hundred glazed sash in use, side by side with glass, so he knows all about it. All the heat used in starting the seeds, in the vicinity of Crystal Springs, is obtained by flues under ground, and burning wood. A simple trench, or two trenches, are dug in the ground, and the seed-bed made over them. Of course, the trench is made on an incline, one foot rise in 20 feet length. The trench is covered with brick, flat stones, or large tile may be used. Pine wood furnishes the heat; and after firing all day, the ground gets so hot (and retains the heat) that your plants are secure from harm during even the coldest night, without any firing during the night-time. Where the firing is done, the opening may be 16 inches across; but it is gradually contracted until it reaches the bottom of the chimney, when it is only about 8 inches across. The chimney is only a square wooden box, say 8 x 10 inches inside, and 8 or 10 feet long. Such a flue will give heat for a bed 40 or 50 feet long. The earth over the flue is 2 feet deep at the *furnace* end, but only 6 inches deep at the *chimney* end. In making the flue, if you arch over with brick, use something similar to a nail-keg to arch over on, sliding it along as you proceed. You can use glass or cloth over this bed as you choose. Of course, glass will give more heat from the sun, and will keep out more frost; but if you commence a little earlier you can get just as good plants by using cloth. I saw plants raised under glass and under cloth, and the latter were every bit as good. Of course, you will have to take more pains in covering the cloth with leaves or straw during very cold spells. Cloth frames have more slant than glass usually does, for the cloth cover is expected to carry off all the rain.

One of the strong points in friend Day's management is to keep the ground *dry*. I could hardly believe he was right until I saw beautiful plants in all stages that had never been watered *at all*. You see, the cloth holds the moisture that rises up through the mellow soil, and at the same time it does not permit the sun to heat up and scorch as the glass does. Friend D. never gives his plants more than one watering if he can help it; and that one is in the *cold-frames*, a week or ten days before they go out to the field. Then they are watered until the ground is soaked. If a rain comes about this time, he prefers it to any artificial watering. Only the seed-beds or *hot*-beds require flues for heat. Now for

THE CLOTH COLD-FRAMES.

This is the great feature of this paper. It is, in my opinion, one of the great inventions of the age. It may be *single* width or *double* width, as I have stated; but the slant in either case should be so as to have a pitch of about 1½ feet in a bed 6 feet wide. The cloth is securely fastened at the upper edge, and the pole on which it is rolled is securely attached to the lower edge. This pole hangs over the lower edge, and holds the cloth down tight to the edge of the one-foot plank that is put around the bed. Strips 1x3 inches are put in like rafters every six feet to hold up the cloth, but they are movable, so as to take them out of the way when desired. To keep out frost, the whole bed must be air-tight, or as near as may be, and the gable ends are therefore held tight by temporary strips, or by strings sewed in at intervals, and fastened to nails driven partly in. To keep out water, make a ditch with outlet, clear around the whole outside. In order that the ground may be cheaply and thoroughly fined up before a crop is put into the bed, the gable ends may be removable, so the horse and cultivator may be run back and forth until all is fine and mellow. Now, here is a bright idea I did not get hold of at first. As every plant is to be lifted from the cold-frame with a square of dirt adhering to its roots, and thus carried to the field, we can not afford to have the field a great way off; therefore the bed *itself* is located in the middle of the field where the tomatoes are to be set. The plants are spaced accurately in the cold-frame, about 5 inches apart. This is done with a marker which looks like the head of a common rake, only it is 5 feet long, and the teeth are 5 inches apart. When the plants are as large as they should be, a butcher-knife is run between the rows, so as to cut out square sods, as it were, a plant being in the center of each sod. But I will tell you more about this later on. I have told enough so you can go at work at once making cloth cold-frames for any of your crops. They will solve the problem as to how we may most cheaply save our valuable early crops from frost. You can use them for early asparagus, cabbage-plants, celery-plants, egg-plants, cauliflower, or any kind of plants that may be wanted; and in many localities they will pay well for early potatoes, wax beans, early beets, etc. I can not learn that they have been used for forcing strawberries, but they would surely prove a perfect remedy for frost in the spring; and after frost is over they are just the thing for melons, cucumbers, etc. In fact, they have been a good deal used for this purpose. When they are located in the middle of the field for tomatoes and such crops, the whole thing is taken apart and moved up by the fence until the next year. Enough tomatoes are left where it stood to get a small advance crop of *extra early*.

Now, this is not conjecture and theory, but it is an account of a great industry that has been going on and developing for years; and I am sure it will interest and profit hundreds of our readers, north, south, east, and west. The book, with illustrations, will be issued during the coming season.

THE PRIZETAKER AND SPANISH KING ONION.

Are these two one and the same thing? Quite a few leading seedsmen, including Johnson & Stokes, who first introduced the Spanish King, declare they are the same, while others, including William Henry Maule, say they are not. One friend writes us that the Prizetaker is a straw-colored onion approaching red, while the Spanish King (or Yellow Rocca) is a yellow one. By the way, how much difference is there between straw color and yellow? I think, friends, that, no matter where you get your seed, or whether you buy Spanish King or Prizetaker, you will find in every field a few onions of red and white both, as well as yellow. I am inclined to think they are sports. Whether these sports can be bred out or not is a question. You will also find similar sports in regard to shape. If the seed is carefully raised from large yellow round onions, so firm and hard they have kept over winter all right, there will be a chance of breeding out these sports, and there is a big opening for some enterprising seedsman, or anybody else, who will take the pains to do this. If there is a man among our readers who can truthfully say he raised the seed himself, from selected onions, during the season of 1892, he can get a big price for his carefully bred selected seed in the spring of 1893. Our friend March gave me some important facts in regard to this matter of seed-raising. It is not at all difficult to get extra nice seed; but it takes more care and patience than most people are willing to give, especially after they have got a big business established. We have some onions saved, and are going to plant them ourselves. Who else will help? Our experiment stations are doing a good work in this very line; and, if I am correct, our Ohio station have decided they could see no essential difference between the Prizetaker and the Spanish King, although they did decide that the seed purchased from *some dealers*, called Prizetaker, was superior to that bought of certain *other* dealers called Spanish King. I wish friend Green would give us a few words on the subject.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

FOUL BROOD IN YORK, NEBRASKA; REPLY TO ELMER TODD; THE DISEASE NOT RAMPANT.

In GLEANINGS, Feb. 15, p. 133, I see an article on foul brood in Nebraska, signed by Elmer Todd. Regarding the subject-matter of the article, we wish to say to Mr. Todd, or any one else, that it is an undisputed fact that there are cases of foul brood in this vicinity; but to the extent that he claims, *it is not a fact*. We have a society here, and one of the express purposes of the organization was to get a unity of action regarding this very disease. To our membership Mr. Todd has often been invited, but will not unite with us, preferring to stand aloof and growl. If it is true, as he says, that rotten combs were thrown in the streets of the city last summer, instead of picking them up and carrying them home, and using them in his own hives, as he admitted to me he did do the summer previous, why did he not report the case to our county bee-inspector, who has been working carefully but effectually to prevent that kind of work, and is stamping out the disease wherever he finds it?

Referring to the catalogue, we suppose he has reference to that of S. C. Gorham, a supply-dealer of York. We printed that catalogue; and before that offer was made, Mr. Gorham said to us: "If he got bees in exchange he could use them in his own apiary; and as to supplying his customers, to my certain knowledge he has arrangements for buying to fill orders *where there is no foul brood*." Mr. Gorham is an old bee-keeper, and a man of principle and honor, and we do not think he would sell any thing to customers from his own yard or this vicinity, knowing that foul brood existed here, and his customers need have no fears; and for one who had little if any knowledge of bees, and never kept any himself until the last two years, and who never goes far from home, or never attends the meetings of bee-keepers, either at home or in the State, to make the broad assertion he does in the published article is unjust and injurious to those who are trying to do the very thing he complains of not being done, but does not help to do.

I hope you will give this as prominent a place as you did Mr. Todd's article, as I think he tries to create a false impression of things here, and injure the trade of those engaged in business here, but which *he does not patronize*.

L. D. STILSON, *Ed. Neb. Bee-keeper*.

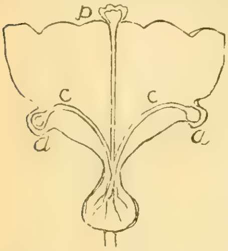
York, Neb., Feb. 22.

[We are glad to give place to the above, as we would not willingly do an injustice to the bee-keepers of Nebraska. We have no doubt that Mr. Stilson, as editor of the *Nebraska Bee-keeper* (an excellent bee-paper, by the way), is in a position to know the facts.]

POISONOUS HONEY; IS THE STORY IN THE A B C OF BEE CULTURE A MYTH?

In the interest of honey-production, every obstacle ought to be removed; and for several years I have been satisfied that there is no such thing as "poison laurel honey." All that I have ever seen written on the subject looked very much to me as if it were the "soldier story," related in A B C, remodeled. Honey sickens many people who are not accustomed to it; and that a gorge of honey (and perhaps plenty of mashed bees) should have had the effects described can readily be imagined. My reasons for this opinion seem to me conclusive.

There are thousands of acres of poison laurel (*Kalmia latifolia*) here, and yet this is a poor honey section. During its bloom the honey-flow is light. No honey here is known to be any thing but healthful. In five years' residence and bee-keeping I have never, in a single instance, seen a bee working upon poison laurel; and, most conclusive of all, the plant makes, as if aware of its poisonous character, provision for its own fertilization. As shown in a cross-section of the flower, it is saucer-shaped, with little pits, or depressions, on the side to retain the end of each stamen with its anthers until the pollen in the latter is ripe. I suppose in the bud the bloom is so folded as to guide the stamen *c* in their growth into the pits *a*; and as the corolla unfolds, these become sprung, as a bow. When the pollen is fully ripened the anthers burst, the stamens are suddenly released, and this miniature and beautiful catapult raises quite a dust for several inches around. I have assisted this result often, and it is certainly a beautiful evidence of design in nature. *I* should take that soldier story out of the A B C, or put this by the side of it. CHAS. T. SWEET.



Swanton, Md., Feb. 16.

[Gently, friend S. Please remember that our correspondent J. Grammer, whose letter appears in the A B C, was a veritable physician residing in Halifax in 1875. He may be there yet for aught I know. During the years that have passed since 1875 we have had considerable correspondence on the subject; but the letter in the A B C book seems to cover the whole ground so fully we thought it not best to put in any more testimony. During my travels I met several times the mountain laurel, and inquired about poison honey. The evidence seems to be that it either yields honey only occasionally, like many other plants, or that the honey is not always poisonous. But a great many instances are on record of honey that affected people in much the same way as described in the A B C book. Before we consent to put your letter beside the one in the A B C book, we should like to hear from others who have had experience with poison honey. The letters need not necessarily be for print, for most bee-keepers would feel a little delicate about advertising the fact that honey from their locality was even *sometimes* poisonous.] A. I. R.

ALUM FOR SNAKE-BITES.

I saw in GLEANINGS, some time last year, that some one recommended alum for snake-bites. In your comments you seemed to doubt it, and said that the bite would probably have got well itself. You also stated that so much alum would be injurious. I have lived in Southwest Texas (where there are more rattlesnakes than in any other place I ever heard of) for 33 years. I have had many cases of snake-bite, both with man and beast. I use nothing but alum, and I never lost a case. I cured one man after he was insensible. If I can give a patient the alum as soon as he is bitten, the place will not swell. You must bear in mind that alum, being an antidote for snake-bite, can do no harm of itself until the poison is overcome. I have never seen nor heard of any bad effects. If this should save some person's or animal's life I shall be well paid for writing it.

Japonica, Tex., Feb. 3. JOHN VINING.

BIG RESULTS FROM TWO COLONIES.

In Southern Kansas bees have wintered finely. To date there have been almost no losses at all. We have had a favorable winter for them here. Bees that were out in the yard have been flying a little nearly every week this winter. To-day, Feb. 26, the bees have been carrying in pollen, reminding us that soon we are to see our young bees in the air. Our climate in the latter part of the summer is too dry for bees to do their best, yet it pays to handle bees even here. Bee-keeping is not my business—I am a minister—and yet two years ago I made $50.00 from two colonies; and last year, a poor year, I made $35 from two colonies. Our honey here comes mostly from the sumac. I am now crowding my bees and will expect them to come into the honey harvest under "a full head of steam."

Yates Center, Kan., Feb. 26. N. V. MOORE.

EVAPORATING HONEY BY STEAM.

I have just read J. A. Green's article, page 88, and wish to inquire whether anybody has ever tried evaporating honey by steam. I can't see why it would not work "just splendid" to run the raw honey through an evaporator with a transverse current over a steam-chest. I once evaporated some in a tin can on a cook-stove, and it "took the cake" over any thing that I had that season, and remained liquid (if that is the correct word, but it was very thick) until the latter part of the winter. But evaporating in that way takes too much time, and requires too constant watching for fear of scorching. With an evaporator, such as suggested above, a constant stream could be run in at one end from a faucet, and the heat would be uniform, so that a uniform article could be turned out without danger of scorching. What do you think of it?

Centerville, Ia., Feb. 9. G. B. REPLOGLE.

[Mr. Thos. Wm. Cowan, of the *British Bee Journal*, constructed an apparatus for evaporating honey by means of hot water; and the apparatus is illustrated and described in the A B C of Bee Culture, under "Extracted Honey." Hot water would be better than steam, because the latter would be liable to scorch or overheat the honey.]

OUTSIDE WINTER CASES, WITH DEAD-AIR SPACE, A SUCCESS.

Long before I ever read any thing about bees, since 1880, I was convinced that bees should be wintered outdoors in unpainted hives, with covers sealed down tight, and that the hives should be protected from the weather by outside cases. I have never found the necessity of any packing between those hives when the outside case is air-tight. This sealed cover was impracticable with the Simplicity and chaff hive. Since 1882 I have been using a hive as made and used by Henry Alley, unpainted, with a cover which always was sealed down in the fall, and I can say that these hives wintered bees each winter since, and never lost any. J. T. FLETCHER.

Clarion, Pa., Feb. 26.

WHY DO QUEENS DIE IN THE SPRING?

I want to ask the following question through GLEANINGS: What is the cause of so many young and prolific queens being lost before the honey-flow in the spring and after the flow in the fall? We have never seen any discussion in any of the bee-journals as to the cause of so much fatality of queens at the above periods. We can readily guess why there are more queenless colonies discovered in the spring than in the fall; viz., because persons do not examine their bees in the fall closely in this respect, consequently many of the spring queenless colonies were queenless in the fall. J. A. GOLDEN.

Reinersville, O., Mar. 1.

[Of course, the rigors of winter must have some effect upon the vitality of bees and queens alike; but aside from this we do not discover that our young queens die more in the spring than at other times.]

BEES' WINGS NOT INJURED BY BEE-ESCAPES.

Referring to the editorial in the last issue of GLEANINGS, mentioning the Porter escape, permit us to say that the objection therein rumored to have been urged against its use is, to our minds, absurd. The springs used in it are smooth on the edges, and everywhere else, and it is not possible for them to injure the wings of the bees. From the letters, etc., inclosed herewith, which we should like you to read and return, and others which we have, we can not think that any Canadian association of bee-keepers ever took such action. Of the more than 5000 escapes sold last year, with the privilege of returning and getting money back after three months' trial, if not satisfactory in every way, not one was returned, nor was a word of complaint received from any one buying them.

Lewistown, Ill., Mar. 5. R. & E. C. PORTER.

[We have read the letters from the Canadians referred to. They all speak highly of the success of the Porter escape.]

INDIANA BEE-KEEPERS.

The names and postoffices of those who have represented the industry at the county and district fairs, and those who are thinking of making an exhibit at the World's Fair, are wanted by a committee, appointed by the Indiana State Bee-keepers' Association. The names are wanted, to be submitted to the proper authorities who will assign the proper space, give needed information, etc. It is hoped that Indiana bee-keepers will take a lively interest in the work, as we have the resources, and there is no reason why we can not make as good a showing as other States. Please send names to Walter S. Pouder, 175 East Walnut St., Indianapolis, Ind.

Committee { E. H. COLLINS.
R. S. RUSSELL.
W. S. POUDER.

MORE PROPOLIZED QUEEN-EXCLUDERS.

You ask if any one has been troubled with bees propolizing the perforated zinc. I have had them propolize the zinc, and I have had them to fill up ¾-inch auger-holes bored in the top of some box hives that I used. If I could overcome that difficulty I would put queen-excluders on all my hives. L. A. DUGGAN.

Cuthbert, Ga., Mar. 7.

EXTRACTING HONEY BY STEAM, ETC.

Will Mr. Osburn please tell us how one man can handle a cart containing 80 combs of honey? From 30 to 40 are as many as I can handle. They average something over 7 lbs., consequently his 80 combs would weigh 560 lbs. or more. With an ordinary cart, such work is impossible.

Gamma, Mo., Feb. 19. THOS. A. ANDERSON.

I have 39 colonies at present, and the leather-colored Italians take the lead in honey-production. W. R. CLOVER.

Clinton, Ind., Feb. 6.

[The fact is, as we have often repeated, the leather-colored Italians are bred for business and not for yellow bands. Your experience agrees with that of many others.]

PREVENTING AFTER-SWARMS A LA DADANT.

As you wanted to hear from those that returned after-swarms *a la* Dadant, I will say they generally come out again, some as often as three different times. But after I took to caging the queen out of the after-swarm three or four days before I let her loose with them, I had no more trouble with after-swarms. Bees seem to have wintered well so far. I have not lost any up to date.

Marshfield, Mo., Mar. 1. J. D. WHITTENBURG.

NOTES OF TRAVEL

FROM A. I. ROOT.

WILSON'S PEAK.

When I first visited Pasadena with friend Woodberry he pointed out to me Wilson's Peak, with the trail plainly visible up its rugged sides, and told me that, before I left the vicinity, I must be *sure* to make the ascent. I did not think much about it; but as there were several places in that vicinity where we were to call, I took the matter under consideration. On Friday, the 22d of January, our good friends Farr and Wm. Stevenson met us at the depot, and, with the aid of friends Kirk and Abbott (president of the Southern California Association), we were shown over the magnificent new residence of Prof. Lowe, who obtained such a celebrity during our recent war by his wonderful balloon ascensions—Prof. Lowe the æronaut we used to call him. I think he made about 300 ascensions in all, in the service of the government. From the observatory on the summit of the mansion, we got, by means of a glass, a plain view of the trail, and also a glimpse of the observatory on the summit of the Peak. After finding the spot with the glass we could just define it with the naked eye; but it was a mere speck, about like the head of a pin, and it glistened in the sun like a miniature tin cup. From this time on I began to get the Wilson's Peak *fever*. Somebody said it was two miles to the top; others said it was four; and finally some one who had been up said it was *seven miles*. The livery-stable men said, however, *nine* miles, and wanted $3.00 for a horse and saddle to go up and back. Now, I knew from sad experience that it tires me and uses me up much more to ride a horse than to go on foot—that is, while I have been out of practice for so many years. I inquired whether anybody had ever gone up on foot. A *few* had done it, I was told, and friend Farr said he had gone part way once, and he said he thought he *could* go the whole way. We went to dinner, but I kept every now and then turning my eye to the dull gray mountain as it lay against the northern sky. Friend Farr's folks gave us an extra nice dinner, and I excused myself for eating so much by saying we *might* try to ascend the mountain. Mr. Farr said if we tried it we must start right after dinner; but we first had to take Mrs. Root over to friend Stevenson's, and we had trouble in finding where he lived. Then, although the base of the mountain seemed only about half a mile away, it proved to be *seven* miles. Again, the ground that looked *down* hill toward the mountain was really *up* hill. Furthermore, before we reached the foot the road was stopped by a broken bridge, and so we started to go the rest of the way on foot. It was only a little piece, any way; but the further we walked, the further and rougher the road seemed, until we were on the brink of a cliff that looked next to impassable. While we stood, like Christian in Pilgrim's Progress, some one hailed us from below. It was friend Stevenson with the buggy. He had found the right road, and was calling us to come out of briers and rocks, and get in and ride to the *real* foot of the trail. He made me think of Evangelist in the same book I have mentioned. We really were a *couple* of tired and discouraged pilgrims, I fear, and we were very glad to abandon our dangerous road and get back into the buggy. We certainly had learned to appreciate a smooth path and a regular traveled road.

It was fully three o'clock when he bade us good-by, and we started off. He was to keep the horse and buggy over night, and come back for us at eleven the next day. If we backed out we were to get home some time in the night as best we could.

Please let me digress a little here. As my story is to bear a good deal on this matter of *health* as well as endurance, I want you to bear with me when I tell you of my physical condition at this time. I was scarcely through with the nervous chills. Only a few days before, my strength would often give out suddenly when I had walked less than a mile. My overcoat and fur cap were worn constantly, indoors and out, when everybody else, almost, was in summer clothing; in fact, I had at the time a cold in my head and right ear. Add to this a *bowel* complaint that had annoyed me for nearly two weeks, and you will have a picture of the man who proposed to walk nine miles *on a stretch*, up a mountain. Mrs. Root and the other women-folks declared I must take my overcoat, and that my companion must carry it strapped over his shoulders. However, I threw it back into the buggy, and our only baggage was half a pound of crackers and a nickel's worth of cheese. I was full of excitement, and I rather thought I should hold out. In five minutes we were up so high that the horse and buggy seemed like a kitten and a baby-cart. We called down to the earth below, and told friend S. to bring Mrs. Root in the morning, and come rather early, so that she could climb up a mile or so, to meet us on our return trip. Then we called again to have the Kodak brought also. Then up we went. The trail is nicely graded, one foot in ten, and just wide enough for a horse. Before we get down to business in climbing, however, I wish to say just a word more in the health matter. Friend Farr advised me to take a good big drink of water, for none was to be had on the trail again until we were nearly half way up. I did not drink *any*, however. Please bear with me if I tell you frankly why. I knew if I took a drink, even a small one, I should very soon have to stop on account of my bowel trouble, not only once, but may be several times. I have been more or less troubled in this way all my life. Oh how I have envied people who could at any time drink all the water they wanted! From the valley below, the trail seems to run along the mountain-side almost without any very short crooks or turns; but when right there you are surprised to find almost every rod of the mountain-side cut with canyons made by the water in its course down, and the trail is therefore in and out and around sharp rocky curves and into sharp grooves, so you are first in the sun and then out of it, in sight of the valley and out of sight of it, until the path becomes an ever changing labyrinth. The accompanying picture gives a glimpse of this.*

The horse and buggy soon became a mere speck down below our feet, and it was only by carefully scanning the thin thread that represented the roadway that we could see it at all. About this time the grandeur and sublimity of the landscape spread out before us began to be almost entrancing. I have often tried to think what the earth below must look like to a balloonist, and here it was before me. The mountain, that had seemed so gradual in its ascent, when viewed from the valley before, now seemed to be almost straight down, over the edge of the trail; and it *was* so in reality, for a stone kicked from the path went crashing and rebounding until it almost frightened one to think of the immense distance. Before we had gone a mile I felt amply repaid for all our trouble; and every rod we made, further on, showed some new unfolding of beauty. First the trail took one side of the mountain and then another; sometimes it turned abruptly so your right hand was against the mountain, when it had before been toward the valley. Up, up, *up* we went. The points that had at first seemed so grand were now a mile below, and seemed almost on a level with the valley, while away up above us we could see glimpses of the trail we were destined to tread. The easy ascent was but play to one whose heart was in it, as was mine, and my enthusiasm rose as our pathway did in its windings among the rocky precipices. A pretty white house near an orange-grove stood near the beginning of the trail. Every time we came round so as to bring it in sight we noted how it grew less and less. When half a mile up it seemed too small for folks to live in; next time it looked like two pieces of shingles, one laid across the other. You see, the house had an L to it. Next time it was about like two pieces of a honey-section, and at last a mere white speck without shape. The orange-trees looked like rows of cabbages, and finally the whole orchard was only a speck of green. Higher and *higher!* If one felt dizzy a while ago, how should he feel *now*, at this immense height, with the clouds below him? Finally I began to think I could take a good drink without any danger of harm, for I was perspiring a little all over, and the red blood was tingling to my very fingers' ends. We watched for the water-trough; but we were so busy talking and looking off into the valley we did not know we had passed it until we were half a mile above it. The sun seemed pretty hot, and we were not sorry when the trail changed to the north side, where trees and bushes cut off the sun as well as the view. Then I began to discover I was getting tired. We ate some of our crackers and cheese, and for a time I felt stronger; but before we had reached the half-way point I thought I was used up. We had been on the trail just two hours. I rested; but when we got up again I was so stiff and sore I really felt worse. I managed to go a little more than half way, when I spoke to friend Farr as follows:

"I *may* be able to hold out until six o'clock; but until *seven*, never."

What *should* I do? It was four miles down and four miles up to any stopping-place. We watched for water, but saw no sign of any, and it would soon be dark. Could we ever tread on this narrow path, so close to such fearful depths, in the night-time? Just about then I must have got what Ernest would call my "second wind." My comrade had just asked if I had any matches. Neither of us had thought of such a thing; but here I was, without an overcoat, and wet with perspiration. He finally fished a broken "lucifer" from one pocket, and our hopes hung on this. I remember thinking I would go a little further, and pretty soon I didn't feel so tired, and started up a brisker walk; then we came out of the pine-trees, and around on that side of the mountain toward the plain again. The picture referred to tells

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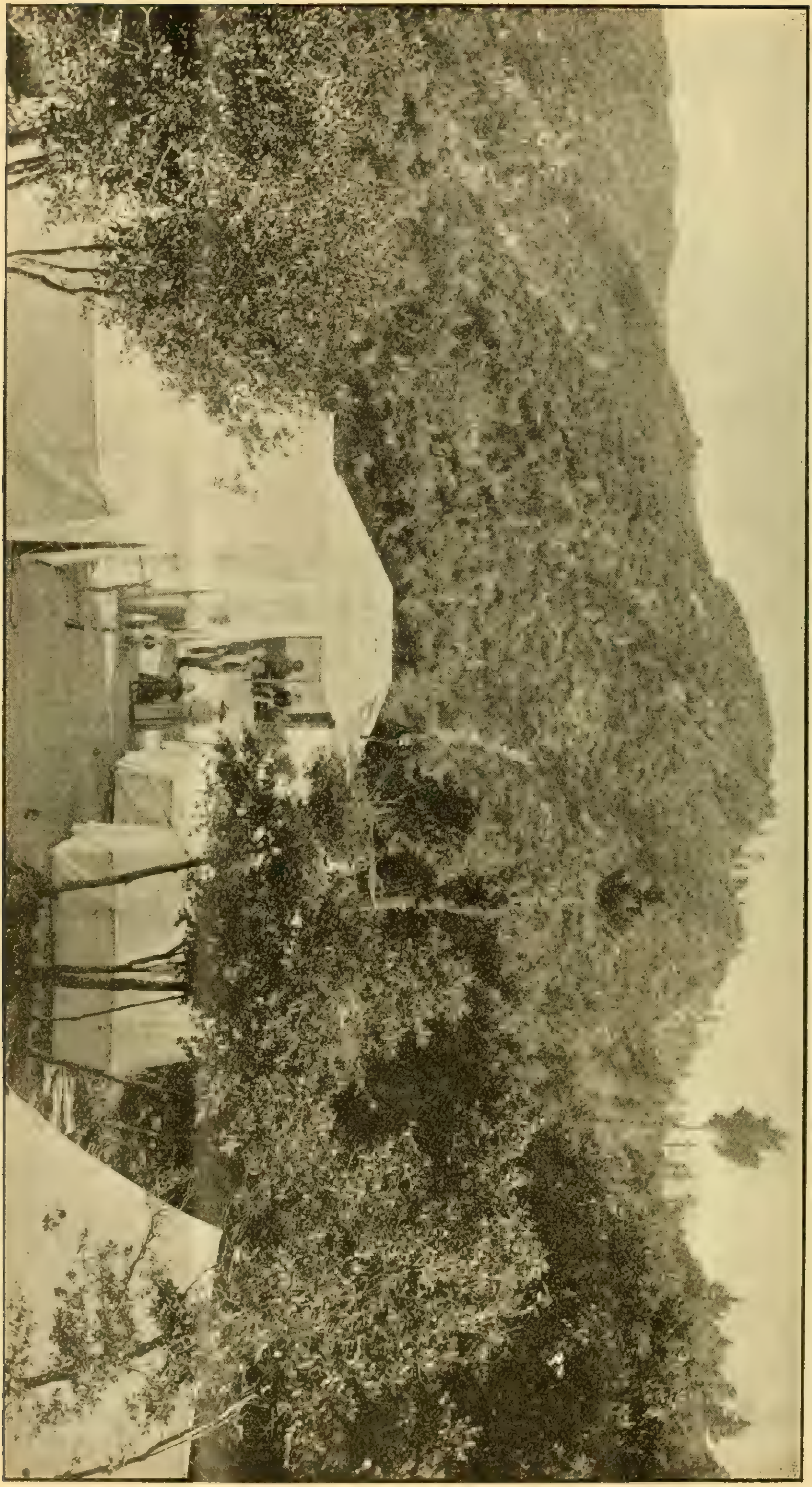
*Our good friend Rambler, on page 197, gives us another very good glimpse of a mountain trail, only his trail is wide enough for a wagon as well as horse.

PINE-TREE POINT, NEAR THE SUMMIT OF MT. WILSON.



CAMP WILSON

part of the story, but it *doesn't* tell, and no picture *can* tell, of that wonderful vision of the world below—the world below the clouds. The following lines tell *something* of what we saw:

> A sweet perfume upon the breeze
> Is borne from ever vernal trees;
> And flowers that, n'er fading, grow
> Where streams of life for ever flow.
>
> O Beulah land! sweet Beulah land!
> As on thy highest mount I stand,
> I look away across the sea
> Where mansions are prepared for me,
> And view the shining glory-shore,
> My heaven, my home for evermore!

We did indeed "look away across the sea," for the ocean had all at once come into view all around us. Mr. Farr said he thought it could not be; but next morning we found it really was the ocean. Down in the valley it was *miles away;* but here it seemed to come almost up to the mountain's foot. Just as we rounded the point (see picture again) darkness set in; and when it was too dark to see plainly, the trail seemed to divide. We took the one that seemed plainest; but after following it in the dark for about a quarter of a mile Mr. F. said he felt sure it was going *down* the mountain, so we felt our way back, and took the other. This went *up* fast enough, *sure;* but it soon became evident it was not *the* trail. We couldn't go back again, so we pushed ahead. I could keep in it only by feeling with my toe, as well as with my hands, and once or twice I really felt so alarmed that I prayed that the great Father above would guide our erring and stumbling footsteps. Very soon after that, this first trail struck the real one, and I tell you I inwardly gave thanks. Up, *up*, UP, we continued to go, until out of the woods we came again, and, oh what a sight met us! Every city for miles around that uses either gas or electric lights sparkled and twinkled into existence in a way that brought strength once more to my tired limbs. Los Angeles was the queen of them all, and then and there she might *well* be called the "queen" of the *earthly* angels. Imagine a thousand twinkling stars, and each star a sun, and the whole of them beneath your feet, and you have it. Pasadena led off as next in radiance, and the rest followed. We were now going steadily round the mountain, and I felt sure that the Mountain Hotel must soon come in sight. By the dim light of the stars we saw a shovel and pick in the trail, up against the bank. They were left, doubtless, by some workman repairing the roadway, and so he couldn't be *very* far away. I have always loved a shovel and pick; but I never saw any tools look so good before. At length, a little in advance, and above our heads, a light met our view that brought from each of us a loud shout of rejoicing. The cut explains it, but you must imagine all the summer tents out of the way, so only the one with the shingle roof (and the stovepipe sticking out of the top) remains.

Our shout was answered by a brisk one from within; and, wasn't there a rejoicing! While the roof is shingles, the sides and doors are cloth. Cloth is cheaper than glass, and lighter to carry up the mountain. With a bright lamp inside, "Camp Wilson" looked very attractive in the night. I was so weary I made for a chair near the great cook-stove; but friend Farr was most anxious about "*water*." Remember, we two had not had a drop for our parched tongues in all that four hours, and up grade eight miles. It was soft spring water, from the summit of the mountain, almost. *160 feet* still higher up. I drank cupful after cupful; and when supper was ready I drank two large cups of coffee, and ate—shall I tell it all? Well, I ate a great lot of pork and beans, ever so many chunks of shortcake, a good lot of honey, and almost half a can of strawberries. I thought the can held almost a gallon; but friend Farr says it was only a quart. I am sure it was *half* a gallon. The sole occupant of Camp Wilson that night was the owner of the shovel and pick; but he is a pretty fair cook, after all. He said they usually had 50 cents a meal, and 50 cents for a bed; but as our supper was cold, and they were out of meat, he would call it a dollar each for supper, breakfast, and lodging. Before I went to bed I drank a lot more of that spring water, and I never had even a *reminder* of that supper of pork and beans, etc.

GLEANINGS IN BEE CULTURE
A Journal Devoted to Bees and Honey and Home Interests
Illustrated Semi-Monthly
36 Pages 7×10
$1.00 Per Year

In the multitude of counselors there is safety.—PR. 11:14.

EIGHT extra pages this issue.

WHO is the editor of the *Canadian Bee Journal?* We hope our old friend D. A. Jones is still at the editorial helm.

OUR subscription-list now numbers 10,125. In spite of the poor honey seasons, we manage to keep above ten thousand.

WE are having quite severe weather this 11th day of March—high winds, and the mercury sporting some of the time very near zero.

AS usual at this time of year we are again flooded with good available matter for publication; but we fear we shall not be able to use all of it.

DR. MILLER says he saw a book on Ernest's desk, on patents. Yes; and if he had rummaged around a little he would have found two or three more. No, we are not going to patent any thing—not even sealed covers, even if we did enjoy the exclusive priority of discovery. The fact is, we like to keep a little posted on the patent question, you know.

DR. MILLER'S Straw against letting bees starve in April is timely. We are now approaching the time of what is sometimes called "springing bees." By the way, it has often been said, and with considerable truth, that it is a good deal harder to "spring" bees than to winter them. Variable weather, that is, warm spells in which brood-rearing gets started, followed by a cold snap in which the brood is killed, is very disastrous, and continued cold weather is far to be preferred.

IN our editorial in the last issue, in regard to adulterating extracted honey, we warned the general public against buying jars of honey (?) containing a piece of comb in it, for the reason that the comb was probably only a delusion and a snare, to give the glucosed mixture the appearance of honesty. We further stated that we did not believe that a single bee-keeper put up his broken-comb honey in that style. We have since learned that there are bee-keepers who put up their honey in just that way; and it is the only way that they can get rid of broken-comb honey at a fair and reasonable price. We have since learned that our friend M. H. Tweed, of Allegeny City, Pa., a bee-keeper and honey-merchant—a man of integrity, honor, and principle—has been putting up pure broken-comb honey in glass jars. We regret that our editorial should reflect in one or two cases on honest bee-keepers, and in another case on our friend Mr. Tweed. His name alone on any kind of package of honey is a perfect guarantee of its purity; and while we believe that adulterated goods are put up in this style, we desire to correct, so far as possible, any injury that may have been done to the business of reputable and reliable men.

In addition to what Ernest has said above, I would suggest that the great trouble in putting up honey in the manner mentioned is the candying of the liquid portion. Either only a little should be put on the market at a time, or something should be done to prevent candying. The venders of this sort of liquid comb honey have excused themselves for using corn syrup, on the ground that it was the only thing that would not candy. A. I. R.

Low prices on dairy products which have prevailed for several seasons, says a correspondent of the *American Agriculturist*, have led many of the dairymen of Central New York to consider the question of engaging in some other branch of farming. The hue and cry is often raised against the low prices of honey, and of the unprofitableness of bee-keeping. If we glance about us we find that other rural industries have similar grievances. As R. L. Taylor said, "Economy in honey production is the sheet anchor of the apiarist's hope." Economy in the production of all kinds of crops should be the watchword of all. If we can not force prices up, the only alternative is to force the cost of production *down*.

ARTIFICIAL COMB HONEY.

I AM sorry that so much space was taken on page 139 in regard to the payment of the $1000 reward. The whole point of the matter is just this: Our card reads, "I will pay $1000 in cash to any person who will tell me where comb honey is manufactured," etc. Now, the thing that was sent us was not comb honey at all. No man, woman, or child on the face of the earth would think of calling it comb honey, neither would the man who made it, if he would consider for a moment; therefore we have nothing to do with it, and there is nothing more to be said about it. You will remember the matter came up because so many were declaring that comb honey *in the market* was not made by the bees, but was manufactured. None has ever been produced. When anybody *does* find comb honey which he thinks was not made by the bees, we should be glad to hear from him. A. I. R.

THE OLD MISSION OF SANTA BARBARA, ETC.

As a rule, our good people here have made very few mistakes in my absence; and even in my fearfully bad writing on Notes of Travel I notice only two places that need correction. On page 135, toward the bottom of the second column, we find this sentence:

"I dreamed of her nights, and while on the streets during the day. If any figure in the least resembled," etc.

It is true, that your humble servant has a very vivid imagination, but I fear he never yet got to dreaming on the streets in the daytime; therefore, when you read the above, please imagine it punctuated as follows:

"I dreamed of her nights; and while on the streets during the day, if any figure in the least resembled," etc.

In our last issue, page 171, near the top of the second column, read "Old Mission" instead of "Old Museum." In fact, the Old Mission would be a rather bad place for a *museum*, for no one of the outside world has for years been permitted to take even the smallest glimpse within that sacred walled garden. A. I. R.

HOME AGAIN.

WE reached Medina March 5: and after meeting so many bee-keepers who had seen hard times on account of short crops, etc., you may be sure I felt a little surprised to see the Home of the Honey-bees booming in every department. Some way or other the boys had started up a bigger trade than we ever had before at this season of the year, and they had contrived so many short cuts in business that I have been rubbing my eyes, and staring around ever since. I hope the kind friends in Florida will overlook the fact that we gave them the "go-by" for the present. We saw so much in California, Arizona, New Mexico, etc., that we really felt as if we hadn't any enthusiasm left for any more wonderful things until we reached home and rested up a little. I had planned writing a great lot of letters to the kind friends who made our visit so pleasant; but, somehow, many things need my attention just now. Shorthand writers and typewriters are crowded to their utmost, and some sick besides, and so I fear that some of you will have to accept the good will for the deed. I want to tell you, however, that Sue and I talk of you by day and dream of you by night. But when she said, while we were in New Orleans, that she would rather see home again just then, than all else that this wide world has to offer, I uttered a devout amen, and we made a "bee-line" for the dear old spot. As I dictate this I can see from the window the men across the way filling the hotbeds and cold-frames with seeds and plants, and we are just going to have a lovely garden, even if I didn't get on hand till March was almost a fourth gone. A. I. R.

"PULLING UP STAKES" AND GOING TO NEW HONEY-FIELDS WITHOUT PROPER INVESTIGATION; THE FOLLY OF SUCH A COURSE.

A FEW days ago a letter came from a correspondent who was influenced some time ago by a highly colored account that appeared in our columns in regard to an alfalfa-field, and was greatly disappointed and chagrined by moving to that much-lauded country, to find that it would have been far better for him if he had stayed where he was. This same correspondent stated further that he sold his home, leased his other property for a term of years, and was compelled to accept his new quarters at a great disadvantage to himself. The climate was insufferably hot, and not congenial to his health. It is the height of folly, and a serious piece of business, to go to a new field without thorough investigation. A correspondent who has given a glowing account of some new field may be perfectly conscientious and honest in his statements; but he may be completely blinded with enthusiasm, and such things are possible. Any one who contemplates selling off his property and moving to a new field should first write to the postmaster for the names of old residents who may be in position to give him the information desired. He might then go himself, without his family, and look over the field, if the results of his inquiries so far justify it. Being on the ground himself, he is then in position to decide, without the enormous expense of moving his whole family or selling all the property he has at home at a sacrifice. As editor of GLEANINGS we take the utmost precaution in having only fair, unbiased accounts of these new fields enter our columns. We should, manifestly, not be doing our duty if we inserted none of these accounts, for journals are intended to disseminate information; and the only thing is for editors and readers alike to go slow.

HOW THE BEES ARE WINTERING AT THE HOME OF THE HONEY-BEES.

LETTERS that are coming in every day seem to show that bees are still wintering remarkably well. Those in our own apiary were never in better condition at this time of year, and we have had an unusually cold and severe winter. You will remember that, late last fall, we stated we were wintering colonies outdoors in various conditions—some of them with sealed covers, some with absorbing cushions, in large chaff hives, in the small one-story chaff hives, and still others in one-story single-walled hives, with an outside winter protecting-case. It is a little funny, but the colonies are all wintering equally well. Those in the large chaff hives are doing no better than those in the single-walled hives with protecting cases, with only a dead-air space, so called, between the two walls. It is funnier still, but the colonies having absorbing cushions, and those having sealed covers, so far as we can examine the latter, are wintering just about alike. But this does not necessarily prove that absorbing cushions are equal to sealed covers. Our winter has been remarkably cold and dry. But wait until we get a mild muggy winter, with the ground reeking with dampness, accompanied by frequent rains. It is then that the sealed covers would assert their superiority. Strange as it may appear, we have lost more colonies outdoors during semi-mild winters than during winters that were severely cold. We have *wintered* the bees nicely so far, and it only remains to be seen how well we shall *spring* them.

"Oh, yes!" some one will ask; "why didn't you try wintering colonies outdoors in single-walled hives, along with the others, without any protection? Perhaps they would have wintered equally well with the rest."

Oh, no! We tried that experiment last winter on 50 colonies, and lost them all. Those having protection *all* wintered. We thought it was useless to throw away any more colonies by trying them without protection. It does not pay.

COST OF PRODUCING HONEY; GRADING HONEY.

FAIR and intelligent discussion, without acrimony, as we believe we have in this issue, brings out many valuable points. While some of the debaters, if we may call them such, have *apparently* stepped beyond the bounds of brotherly kindness in their replies, yet we are very sure there is no ill feeling; and if their words were uttered in convention they would be lighted up by many a comical twinkle of good nature. Quite by accident, the discussion in this issue as it appears on the first pages is handled by the giants in our pursuit—some of the first writers in all beedom. Unfortunately it is a little lopsided, leaving Mr. Doolittle all alone. We desire to have all discussion, so far as it may appear in GLEANINGS, well and evenly balanced; and although Mr. Doolittle is on t'other side of the fence to what we are, we have just learned that one of the "giants" in York State favors Mr. Doolittle's side of the discussion, and we have therefore asked him to write an article for our next issue. We think we shall then have to declare the discussion for the present at an end; and in the meantime it would be pertinent for bee-keepers, who are in position to do so, to keep careful account, so far as they are able, of what it costs them to produce their crop of honey for the ensuing year. The discussion that we have already had on the subject will give plenty of material on which to work.

The subject of grading honey seems to have received already its fair share of attention; and while there may be some points that will pass unnoticed we think best to declare this discussion at an end for the present. The whole subject has been discussed thoroughly and intelligently, and the only thing that remains now is for a national body of bee-keepers to agree upon and recommend a system or systems of grading. It looks now as if it would be impossible for all bee-keepers to agree upon any one schedule. As we intimated in our last issue, we may be obliged to have two and possibly three systems of classification. In this event the bee-keepers of the East will have to formulate a set of rules that will be acceptable to them; so also, in a similar way, the bee-keepers of the Mississippi Valley and Pacific Coast. It may appear that we are disposed to cut off discussions prematurely; but it is better to do so a little too soon than to let them go on issue after issue until everybody is tired and disgusted. There is plenty of other pabulum in the field yet, and we do not wish to wear out any one topic until it is threadbare, and thus defeat the object of real discussion.

LETTING BEES STARVE.

WHILE in California I found several apiaries where the bees were starving. One apiary belonged to quite a young bee-keeper in his A B C class. As he wanted more bees, he had been raising queens and making artificial swarms the fall before, until he had his colonies up to 200 or 300 in number. As the bees fly almost every day in the year in that locality, he rather thought they were getting enough. But just before new honey should begin to come in he lost—how many colonies do you suppose, by starvation? Well, pretty nearly a *hundred*. Then when he went to feeding, either he did not feed enough or they got to robbing, until he was getting pretty nearly discouraged. Less than a mile away I visited another very pretty apiary where every thing was tidy and neat, and even a shade was made over the whole apiary, of stakes, poles, and brush. This shade is a necessity in hot climates, to keep the combs from melting down. They wished me to see whether foul brood was in their apiary or not. Well, I did not find foul brood, but I *did* find bees down on their backs, and giving their last kicks because of starvation. I told my good friend that, if he would give his bees a good big feed, and get them up into thrifty shape, I thought his foul brood would all disappear. Now, this brother has been investing money in queens that produce *five-banded bees*, and he wanted me to look at some of them. I told him I would much rather help him get some feeders, and feed every colony that needed it, before another half-hour had gone by. Another friend told me that his bees were all right in December, but he hadn't looked at them since. This was in March. Now, it may do for a veteran to let his bees alone from December till March; but where the weather is so warm that bees are flying almost every day, I think we had better look them over often, and be sure that they don't starve, or even come pretty *near* starving. Just think of the labor and pains required to make artificial swarms, getting each one with a good queen, the bees taught to protect their hive, and brood-rearing set going so as to give them sufficient force to live through the winter—and after this, kicking it all over by a little lack of attention! Sometimes it needs only half a pound of honey to fetch them through; and if any of you are letting your bees starve while you are sending away for queens that produce five-banded bees, I hope you will turn over and do better. Uncle Amos may come around when you don't expect it, and tell it right out before all the world.

Moral.—Be *sure* your bees are not starving.

A. I. R.

ALWAYS
ON
TOP

PRICES LOW.

Our strain of ITALIANS have reached the top. They are HUMMERS when you want bees for honey. Queens bred for business. Make arrangements to order now, to be delivered when wanted.

BEE SUPPLIES AT WHOLESALE AND RETAIL.

For further information about bee-fixtures, send for circular.

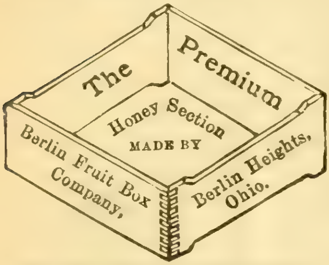
JNO. NEBEL & SON.
4tfdb HIGH HILL, MO.

Please mention this paper.

My Catalogue of APIARIAN SUPPLIES for 1892 is free; My Pamphlet, "HOW I PRODUCE COMB HONEY," by Mail, 5 cts.

GEO. E. HILTON, Fremont, Mich.

Please mention GLEANINGS. 2-13db



Send for our new price list of Bee supplies and Fruit packages. A liberal discount allowed on winter orders. Address

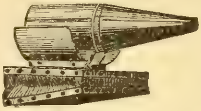
BERLIN FRUIT BOX CO.,
Berlin Heights
Erie Co.,
Ohio.
1-6db

☞In responding to this advertisement mention GLEANINGS

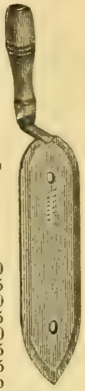
POSITIVELY by return mail I will ship warranted purely mated Italian queens at $1 each; tested, $1.50; select tested, yellow to the tip, $2. guarantee satisfaction, and refer you to A. I. Root, W. Z. Hutchinson, D. A. Jones, or my thousands of customers.

4tfdb W. H. LAWS, Lavaca, Seb. Co., Ark.

✣BEST ON EARTH✣



ELEVEN YEARS WITHOUT A PARALLEL, AND THE STANDARD IN EVERY CIVILIZED COUNTRY.



Bingham & Hetherington

Patent Uncapping-Knife,

Standard Size.

Bingham's Patent Smokers,

Six Sizes and Prices.

Doctor Smoker,	3½	in.,	postpaid	...$2.00
Conqueror "	3	"	"	.. 1.75
Large "	2½	"	"	... 1.50
Extra (wide shield)	2	"	"	... 1.25
Plain (narrow ")	2	"	"	... 1 00
Little Wonder,	1¾	"	"	.. 65
Uncapping Knife.....				..1 15

Sent promptly on receipt of price. To sell again, send for dozen and half-dozen rates.

Milledgeville, Ill., March 8, 1890.

SIRS:—Smokers received to-day, and count correctly. Am ready for orders. If others feel as I do your trade will boom. Truly, F. A. SNELL.

Vermillion, S. Dak., Feb. 17, 1890.

SIRS:—I consider your smokers the best made for any purpose. I have had 15 years' experience with 300 or 400 swarms of bees, and know whereof I speak.
Very truly, R. A. MORGAN.

Sarahsville, Ohio, March 12, 1890.

SIRS:—The smoker I have has done good service since 1883. Yours truly, DANIEL BROTHERS.

Send for descriptive circular and testimonials to

4tfdb **BINGHAM & HETHERINGTON, Abronia, Mich.**

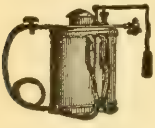
☞In responding to this advertisement mention GLEANINGS.

DOVETAILED HIVES, SIMPLICITY HIVES,

SECTIONS, EXTRACTORS, ETC.
A FULL LINE OF
BEE-KEEPERS' SUPPLIES.
60-PAGE CATALOGUE. 1tfdb

J. M. JENKINS, WETUMPKA, ALABAMA.

☞In responding to this advertisement mention GLEANINGS.



SPRAY YOUR FRUIT TREES AND VINES

Wormy Fruit and Leaf Blight of Apples, Pears, Cherries, Grape and Potato Rot, Plum Curculio prevented by using EXCELSIOR SPRAYING OUTFITS. PERFECT FRUIT ALWAYS SELLS AT GOOD PRICES. Catalogue showing all injurious insects to Fruits mailed free. Large stock of Fruit Trees, Vines, and Berry Plants at Bottom Prices. Address WM. STAHL, Quincy, Ills.

24-10db ☞In responding to this advertisement mention GLEANINGS.

ROOT'S GOODS FOR THE EAST.

Bee-Keepers of the East should

Bear In Mind that we have established at Syracuse an **Eastern Branch** where our Bee-keepers' Supplies are kept for sale, and prompt shipment. You can save time and freight by ordering from our Eastern Branch. We have engaged Mr. F. A. Salisbury to take charge of this business, and he will treat you well. He will be pleased to send you a list of goods kept in stock.

Address all orders,

EASTERN BRANCH, F. A. SALISBURY, Agent, Syracuse, N. Y.

I TELL you what, Jones, **Levering Bros.** sell the best goods and at the lowest price of any one I've struck yet. The largest and best equipped

Bee - Hive Factory

in the West. The Dovetailed Hive and New Hoffman self-spacing Frame a specialty. Every thing used by practical bee-keepers at wholesale and retail. Send for their free Illustrated Price List, and save money. Supply Dealers, send for their Wholesale List. Address

LEVERING BROS.,
6tfdb **Wiota, Cass Co., Iowa.**

Please mention this paper.

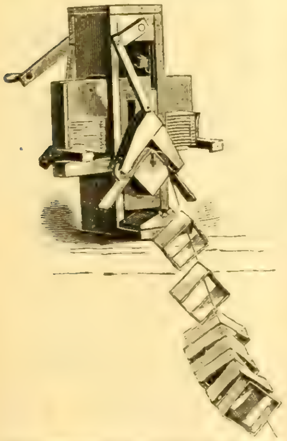
Cheapest Yet.

25 SWARMS of bees, mostly hybrids, a few blacks. All in the A. I. Root two-story chaff hives; plenty of honey, strong swarms, and splendid workers. $5.00 per stand. Have 90 section frames full of section boxes, with foundation, I think, more than one-half drawn out; 50 empty frames all thrown in at the above price. For particulars call on or address

L. D. NELSON, Cherokee, Iowa.

Please mention this paper.

PHILO'S AUTOMATIC SECTION FORMER AND GLUER.



IT DOES BOTH AT THE SAME OPERATION. ALL YOU HAVE TO DO IS TO TURN THE CRANK, AND THE SECTIONS ARE ROLLED OUT BY THE WHOLESALE. ANY CHILD CAN DO IT. PRICE ONLY $3.00. Address

E. W. PHILO,
Halfmoon,
N. Y.

☞In responding to this advertisement mention GLEANINGS.

FOR SALE. For May delivery, Italian and Hybrid Bees in light shipping-cases, 8 L. frames. Price, for Italians, $4.00; hybrids, $3.00 each, free on board cars here. I guarantee safe delivery.

A. W. GARDNER,
5-8db **Centerville, Mich.**

☞In responding to this advertisement mention GLEANINGS.

PERSONS WANTING

APIARIAN SUPPLIES

Would do well to send to W. E. CLARK, Oriskany, Oneida Co., N. Y. Send for illustrated price list. Dealers should send for Dealers' list for Smokers.

☞In responding to this advertisement mention GLEANINGS.

I DO NOT ADVERTISE

a specialty, but every thing found in APIARY. Beeswax wanted.

C. E. LUKENS,
6-7d **19 N. 2d St., Philadelphia, Pa.**

STRAWBERRY WONDERS!

BOYNTON 400 bushels of berries to the acre
BERT SEEDLING 1100 quarts to the acre

At the Geneva Experimental Station, in matted rows. The best Shipping and Selling Berries ever produced.

BOYNTON 50c per dozen, $2.00 per 100.
BERT SEEDLING 25c per dozen, $1.25 per 100, post paid by mail. Also Jessie, Kentucky, and 25 other varieties. Two first are the best. Also

TRUE BELGIAN HARES CHEAP.

Address F. BOOMHOWER, Gallupville, N. Y.

☞In responding to this advertisement mention GLEANINGS.

BEESWAX!

Foreign and domestic. Crude and refined.
A stock constantly on hand.
Write for prices, stating quantity wanted.

ECKERMANN & WILL, Syracuse, N. Y.

☞In responding to this advertisement mention GLEANINGS.

LOOK! HONEY-COMB FOUNDATION! LOOK!

FRIENDS, if you need foundation it will pay you to purchase of us, as we have again purchased the very latest improved mills, and shall send none but the best foundation. We will allow 15% discount until April 10th on all orders. Send stamp for free samples. Address **C. W. PHELPS & CO.,**
6-11db 74 PETITT ST., BINGHAMTON, N. Y.

☞In responding to this advertisement mention GLEANINGS.

FOR SALE.

20 Acres Land in Berkley Co., W. Va., 5 Miles West of Martinsburg, County Seat of Berkley.

The following varieties of fruit upon it in full bearing are, 75 apple-trees, 130 grapevines, 20 cherry-trees. Buildings in good and substantial condition. Dwelling-house, smoke-house, corn-crib, stable, and spring-house, with a never-failing spring of pure water. Good location for bees or queen-rearing.

Price $700.00. Address

WILL THATCHER,
6-7d **Martinsburg, Berkley Co., W. Va.**

Please mention this paper.

150 STRAWBERRY-PLANTS,

Six choice varieties by mail, prepaid for **$1.00.** **The Secrets of Success in the Growing of Small Fruits,** and catalogue of varieties describing above collection **Free** by mail.

6-7d I. A. WOOLL, Elsie, Mich.

Please mention this paper.

SELLING OUT Our entire stock of Italian bees, all in chaff hives; $5.00 per swarm with hive included. Hives and furniture for sale at half price. Call in person, or send cash. Send letter to

JARVIS T. MARBLE,
24 New Boston Road, Fall River, Mass.

FOR SALE. The apiary of Solomon Vrooman, deceased, consisting of 107 colonies, and all necessary appliances. For many years the apiary of John H. Martin, Hartford, Washington Co., N. Y.

Address F. S. ELDREDGE, No. Adams,
No. 11 No. Church St. Berkshire Co., Mass.
6-78d

Please mention this paper.

FOR SALE.—WARRANTED PURE-BRED PUNIC QUEENS. No others near. Queens delivered in June. Price $2.00 each; one-fourth off on all orders with cash before April 15. Safe arrival guaranteed. Alfalfa seed by mail, 35c per lb.

FRANK H. HOWARD, Box 55, Garden City, Kansas.
6-7d

RED CAP and BLACK MINORCA EGGS FOR HATCHING, FOR SALE BY
6tfdb **E. P. Aldridge, Franklin, Ohio.**

FOR SALE.—Well-equipped apiary in good location (Del. Co., N. Y.). Address

JOHN S. CALLBREATH, Monticello, N. Y.

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All advertisements intended for this department must not exceed five lines, and you must SAY you want your adv't in this department, or we will not be responsible for errors. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To trade a large lot of Heddon hives, nicely made and good as new; some with combs complete for honey, now or after crop of '92. Write for particulars. Address D. S. HALL,
2tfdb South Cabot, Vt.

WANTED.—To exchange apiary of 75 colonies, with every thing needed in the business, for land or other property or offers. Several valuable town lots in live railroad town; no better location for bees in Iowa or Wisconsin. Correspondence invited. 5-6d B. F. LITTLE, Brush Creek, Iowa.

WANTED.—A Christian young man who has had some experience in care of bees, to work in garden and orchard. State experience, and wages wanted. J. H. EVANS, Lewiston, Idaho. 5-6d

WANTED.—To exchange 80 acres of good timber land for bees. Land close to a railroad, to a good sawmill, and close to a good village. State what kind of a hive bees are in. BERT HANDY,
5-6d Richland Center, Wis.

WANTED.—For 1892, as learners, two young men, brisk, honest, and temperate. Can back instruction by 35 years of active experience in apiary.
4-5-6 S. I. FREEBORN, Richland Centre, Wis.

WANTED.—To exchange comb foundation for beeswax. C. W. PHELPS & CO.,
6-11db 74 Petitt St., Binghamton, N. Y.

WANTED.—To exchange an imported female English mastiff, a good house dog, for modern improved bee-hives complete, or Cotswold or Shropshire ewes. AMOS GARRETT, Sugartown, Pa. 6d

WANTED.—To exchange eggs of R. C. Brown Leghorns and Pekin ducks, and Italian queens for foundation. J. T. VAN PETTEN, Linn, Kan. 6d

FOR EXCHANGE.—7 vol's of the Youths' Companion, for the years 1882, '84, '85, '87, '88, '89, and '90; 340 numbers, cost 12.25. Wanted, 2 colonies of bees. MORTEN HJERMSTAD,
6d Norseland, Nicollet Co., Minn.

WANTED.—To exchange a town lot in the thriving city of Leroy, Fla., situated in the heart of the Orange belt of the State, for any thing useful on a farm or apiary. JENNIE ATCHLEY,
6-7d Floyd, Hunt Co., Texas.

WANTED.—To exchange job printing of any kind for black or Italian bees. A. D. ELLINGWOOD,
6-9db White Mountain Apiarist, Groveton, N. H.

WANTED.—To exchange bees or bee-supplies for pine lumber. Speak quick. Address
6d C. F. UHL, Millersburg, Ohio.

WANTED.—To exchange Odell typewriter for printing-press or offers. P. M., Rush River, Minn.

WANTED.—To exchange a new foot-power saw for bees by the pound. W. S. WRIGHT,
6d Battle Creek, Mich.

WANTED.—A practical experienced bee-keeper to take charge of an apiary at Fort Collins, Col. Steady employment for any length of time to the right man. State experience and wages wanted.
6d Address WALT. L. HAWLEY,
c-o Col. Springs Gardens, Colorado Springs, Col.

WANTED.—To exchange eggs for hatching for dry-bone mill, small foundation mill, or thin foundation. My stock of Light Brahmas, White P. Rocks, and Golden Wyandottes is as good as the best. D. F. LASHIER, Hooper, N. Y. 6d

WANTED.—To exchange or sell 1 air-brush, good as new, for No. 2 Kodak camera.
J. J. NORRIS, Anderson, Anderson Co., S. C.

WANTED.—To exchange Exterminator spring-tooth harrows, new; made by Whipple Harrow Co.; or Smalley three-horse tread power, for supplies, bees, queens, honey, cash, or any thing I can use. EZRA BAER, Dixon, Lee Co., Ill. 6d

WANTED.—To exchange greenhouse and bedding plants, for a Kodak, b-flat cornet, or offers.
6d JOHN MAJOR, Cokeville, Pa.

WANTED.—To exchange tested Italian queens for fox or coon hound dog, either a pup or a grown dog. R. H. CAMPBELL, Madison, Ga. 6d

I WISH to correspond with some one having Mulborough raspberries for sale. R. ROBINSON,
6d Laclede, Fayette Co., Ill.

Solid GOLD

Around the queen centers our future success in apiculture. A poor queen, like a poor horse, will die on our hands when most needed. Color in either case is immaterial, being simply a matter of choice—my choice is the G. M. Doolittle strain of Italians which is not only the prettiest, but is also far in advance of all other strains, imported Italians not excepted.

I am the owner of the best queens ever produced by Mr. Doolittle; and shall govern myself according to Nature's best way of rearing queens.

Listen to what Mr. Doolittle says: "During the past sixteen years, these bees have been bred with great pains regarding their honey-gathering qualities, my average production of comb honey from each colony for that time having been about 80 lbs. each year, while single colonies have given us as high as 298 to 309 pounds."

My capacity is about 300 nuclei, while my rates are as follows: Virgin queen, 40 cts.; untested, $1.00; tested, $2.00; select tested, $3.00; select tested breeding queen, $4.00.

Special Offer. A select tested breeding queen will be given the one ordering the greatest number of queens during the month of Mar., Apr., May, or June. Orders may be booked now, and the pay sent when the queens are ready.

6d **W. V. MOREHOUSE, Lafayette, Ind.**

☞In responding to this advertisement mention GLEANINGS.

EARLY QUEENS and BEES
FROM THE SOUTH.

1 untested queen,	April,	$1.00;	May,	$1.00
3 "	"	2.75;	"	2.50
1 tested	"	2.00;	"	1.50
3 "	"	5.00;	"	4.00

Best Select Tested for breeding, $3.00.

Two-frame nuclei, with any queen, $1.50 each extra. Safe arrival guaranteed. Special rates to dealers.

W. J. ELLISON, 6-7-8d
Catchall, Sumter Co., S. C.
Please mention this paper

C. W. Phelps & Co's Foundation Factory.

SEE ADVERTISEMENT IN ANOTHER COLUMN.
6-11db 74 Petitt St., Binghamton, N. Y.

BEE-HIVES and Supplies. Send for catalogue free. Address **SAMUEL JONES,** Highland Park College, Des Moines, Iowa. 6-7d

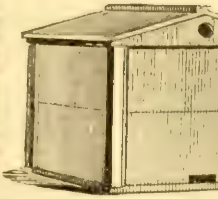
I WILL SELL

a setting of 13 eggs, BARRED PLYMOUTH ROCK chickens, for $1.00. **DANIEL BEISHLINE,**
6d **Bradshaw, York Co., Neb.**

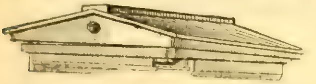
Black and Hybrid Queens For Sale.

I have 50 good hybrids and black queens for sale at 25c each, ready for immediate delivery.
6-7d W. H. HEASTMAN, Citra, Marion Co., Florida.

Great Crash in Prices!



From 10 to 25 % discount from former prices. My 40-page catalogue for 1892 gives reasons. I offer a new-style chaff hive at one-half the cost of other styles, and just as good. This hive can be taken apart almost instantly, and packed up in small space. It can be used on any hive (see cut). Don't fail to get my 32d annual price list. I mean business, and am bound to sell as good as the best, and at equally low prices.



Address **WM. W. CARY,**
6tfdb **COLERAINE, MASS.**

Please mention this paper.

FRIENDS, LISTEN.

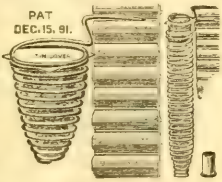
Jennie Atchley has lately bought a lot of black and hybrid bees, and will sell you same by the pound, at $1.50; five or more pounds, $1.25. Queens out of same, 30 and 50c each. Safe arrival guaranteed. Express on a pound to St. Louis, 15 cts. I can not give rates farther.

JENNIE ATCHLEY,
6-7d **Floyd, Hunt Co., Texas.**

Please mention this paper.

CONTROL YOUR SWARMS!

N. D. WEST'S SPIRAL WIRE QUEEN-CELL PROTECTORS AND CAGES.



PAT DEC. 15. 91.

N. D. West's Spiral Wire Queen-Cell Protectors will do it, and you can RE-QUEEN your apiary during the swarming season. Pronounced the Best by such men as CAPT. J. E. HETHERINGTON, Cherry Valley, N.Y.; P. H. ELWOOD, Starkville, N. Y., and others. Cell-Protectors, $3.00 per 100, or 12 for 60c, by mail. Cages, $5.00 per 100, or 12 for $1.00, by mail. Samples of both, with circular explaining, 25 cts. The cages are used for hatching queens in any hive, and are the Best Bee-Escape in use. Address

N. D. WEST, Middleburgh, Schoharie Co., N. Y.

Please mention this paper.

A POULTRY BOOK Called "The Chicken Business, and How to Make it Pay." Tells all about it. Finely illustrated, practical, and original. Price 50 cents, postpaid. An illustrated circular free, giving particulars about the book, and prices of pure-bred fowls and eggs for sale by the author. 4tfdb

H. B. GEER, Nashville, Tenn.

In responding to this advertisement mention GLEANINGS.

Maple Syrup For Sale in 1-Gallon Cans.

1 can, $1.10; 5, $5.00; 10, $9.50; 20 or more, 90 cts. each, boxed and delivered, F. O. B. Satisfaction guaranteed. F. W. DEAN, New Milford, Pa. 6-7d

---

WANTED.—To send you my catalogue of Queens, Bees, and Supplies, cheap. 4tfdb
CHAS. H. THIES, Steeleville, Ill.

Bee-Keepers' Supplies.

HIVES, HONEY-CASES, SECTIONS, AND FRAMES.

We are the only concern in Southern California who make a

SPECIALTY OF BEE-KEEPERS' MATERIAL.

Agents for the white basswood 1-lb. sections. Send for catalogue and price list.

OCEANSIDE MILL CO.,
Oceanside, Cal.

☞ In responding to this advertisement mention GLEANINGS.

---

25 COLONIES bees for $75.00; painted D. hives, every thing first-class, May to June.
6d JNO. C. CAPEHART, St. Albans, W. Va.

FREE! FREE! FREE!

My new price list of Pure Italian Bees and Queens, White and Brown Leghorn Chickens, and White and Brown Ferrets. **N. A. KNAPP,**
Rochester, Lorain Co., Ohio.

Please mention this paper.

ITALIAN QUEENS.

Untested, $1; 6 for $5. Tested, $1.50; 6 for $7. Special terms for large orders.

H. FITZ HART,
6tfdb **Avery, Iberia Parish, La.**

☞ Please mention GLEANINGS.

MINNESOTA AHEAD, WHY?

Because in consequence of her pine forests lumber is cheap. That's the reason Erkel sells hives cheaper than any one else in America. Only think, single-story hives from 35c up; two-story hives from 70c up. Other supplies cheap. Send for catalogue.
6tfdb **F. C. ERKEL, Le Sueur, Minn.**

Please mention this paper.

BEES BY THE POUND,

ITALIAN QUEENS, ALSO A SELECT LINE OF

BEE-KEEPERS' SUPPLIES

Send for price List to

OLIVER FOSTER, Mt. Vernon, Linn Co., Iowa.
6tfdb Please mention this paper

FOR SALE CHEAP.

90 HIVES OF ITALIAN BEES.

Address **E. S. HUBBELL,**
Torrington, Litchfield Co., Conn.

FOR SALE.—Fifteen colonies of Italianized bees, at $5 per colony.
MRS. N. MARKS, Newburg, Ohio.

C. W. Phelps & Co's Foundation Factory.

SEE ADVERTISEMENT IN ANOTHER COLUMN.
74 Petitt St. Binghamton, N. Y.

VIOLINS GUITARS MANDOLINS MURRAY & HEISS. CLEVELAND OHIO. MUSICAL GOODS OF ALL KINDS. CATALOGUE FREE

Foundation, Wholesale and Retail.

If you would like to see how nice foundation can be made, send for free samples. Special prices to dealers on Foundation and Sections, etc. Free price list of everything needed in the apiary. 6tfdb (Near Detroit.)

M. H. HUNT. Bell Branch, Mich.

TAKE NOTICE!

BEFORE placing your orders for SUPPLIES, write for prices on One-Piece Basswood Sections, Bee-Hives, Shipping-Crates, Frames, Foundation, Smokers, etc. PAGE & KEITH,
14ttdb New London, Wis.

Please mention this paper.

SECTIONS.

$2.50 to $3.50 per M. Bee-Hives and Fixtures cheap. **NOVELTY CO.,**
6tfdb **Rock Falls, Illinois.**

☞In responding to this advertisement mention GLEANINGS

EARLY QUEENS FROM TEXAS.

From my choice 3 or 5 banded stock. My bees are very gentle, good workers, and beautiful. Safe arrival and satisfaction guaranteed. One untested queen, March and April, $1.50; May, $1.00; later, 75c. Orders booked now; money sent when queens are wanted. Send for price list. 4a

J. D. Givens, Lisbon, Tex.

Please mention this paper.

500 Colonies of Bees Devoted to Queen-Rearing.

Write for prices on large quantities.

TWO MILLION SNOW-WHITE SECTIONS.

Write for prices on large quantities.

Send for our 24-Page Catalogue of Dovetailed Hives, Smokers, Extractors, Etc.

LEAHY M'F'G CO., Higginsville, Missouri.

Please mention this paper. 5tfdb

Bees For Sale.

COLONIES,
NUCLEI,
AND QUEENS,

at living rates. Send for circular and price list to

C. C. VAUGHN & CO.,
Columbia, Tenn.

In writing to advertisers please mention this paper. 5-10db

IMPORTED ITALIAN QUEENS, $3.50, June 1st. Order now.
4tfd W. C. FRAZIER, Atlantic, Iowa.

HURRAH FOR THE GRAY CARNIOLANS!

Bee-keepers, if you want a race of bees that will just pile in the honey, get the gray (only pure) Carniolans. For instance, here is a report of one of our apiaries of 50 colonies for the season of 1891: Honey crop, 7000 lbs. Yield of best colony, 230 lbs. Increase by natural swarming, 15 colonies. For further information write for circular and price list. F. A. LOCKHART & CO., Lake George, N. Y.

Please mention this paper. 5-6d

SUPPLIES. Langstroth Bee-hives, and every thing needed in the bee yard; 30-page catalogue free. **"BUSY BEES,"** a book telling how to manage them, 10 cents in stamps. ***WALTER S. POUDER,*** 5-12db

175 E. WALNUT ST., INDIANAPOLIS, IND.

☞In responding to this advertisement mention GLEANINGS.

AMERICAN BEE JOURNAL

32 pages—**$1.00** a year—Sample Free.

The oldest, largest and cheapest Weekly bee-paper

THOMAS G. NEWMAN & SON,
CHICAGO, ILL.

Bee-Keepers' ❁ Supplies.

We are prepared to furnish bee-keepers with supplies promptly and at lowest rates. Estimates gladly furnished, and correspondence solicited. Our goods are all first-class in quality and workmanship. *Catalogue sent free.* Reference, First National Bank, Sterling, Ill. Address 1-24db

WM. McCUNE & CO.,
Sterling, Illinois.

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C. W. Phelps & Co's Foundation Factory.

SEE ADVERTISEMENT IN ANOTHER COLUMN.
74 Petitt St., Binghamton, N. Y.

SAVE MONEY.—Send to J. P. H. Brown, Augusta, Georgia, for his price list of supplies. Hives and foundation at wholesale rates. 4tfdb

ITALIAN QUEENS FOR SALE.

The finest honey-gatherers in the land. Tested, $1.50 each. Select tested, $2.00 each. Untested, $1.00 each, or $9.00 per doz. Queens ready to ship by April first. I guarantee safe arrival and satisfaction, by mail. Orders booked now and pay when you want queens. **J. W. TAYLOR,**
4tfdb **Ozan, Ark**

☞In responding to this advertisement mention GLEANINGS.

BEES

350 Colonies
1,000,000 Sections,
Foundation, &c.
☞Send for price list.
E. T. FLANAGAN,
BELLEVILLE, ILL.

☞In responding to this advertisement mention GLEANINGS.

Hatch Chickens by Steam.
IMPROVED EXCELSIOR INCUBATOR

Circulars free.

Will do it. Thousands in successful operation. ***Simple, Perfect and Self-Regulating.*** **Lowest-priced first-class Hatcher made. Guaranteed to hatch a larger percentage of fertile eggs at less cost than any other.**
Send 6c. for Illus. Catalog. GEO. H. STAHL, Quincy, Ill.

☞In responding to this advertisement mention GLEANINGS.

AUTOMATIC COMB FOUNDATION MILLS.

2-7db —MADE BY—

W. C. PELHAM, Maysville, Kentucky.

Please mention this paper.

EARLY GOLDEN, UNTESTED QUEENS. $1.00. LARGE, FINE, GENTLE, AND BRED for business. Ready about March 20. Dealers send for prices. Fine tested, raised last year, $1.50 to $2.00. A few breeders, Italian or Golden, $3 to $5.

J. B. CASE, Port Orange, Vol. Co., Fla.

Please mention this paper. 3tfdb

Western Bee-Keepers' Supply House

Root's Goods can be had at Des Moines Iowa, at **Root's Prices.** The largest supply business in the West. Established 1885 Dovetailed Hives, Sections, Foundation, Extractors, Smokers, Veils, Crates, Feeders, Clover Seeds, etc. Imported Italian Queens. Queens and Bees. Sample copy of our Bee Journal, **"The Western Bee-Keeper,"** and **Latest Catalogue** mailed **Free** to Bee-keepers.

JOSEPH NYSEWANDER, DES MOINES, IOWA

3tfdb

In writing to advertisers please mention this paper. 4tfdb

THE—

Pecos Valley

THE FRUIT BELT

OF NEW MEXICO,

HAS—

The finest system of irrigating canals on the continent;

Over 30,000 acres of choice farming and fruit lands;

Water enough to irrigate half a million acres;

A climate equal in every respect, and superior in some respects, to that of Southern California;

Good schools, churches, railway & telegraph facilities, good society;

Lands for sale at **$25 an acre** on **10 years' time,** interest at six per cent, this price including perpetual water right;

No drouths, no floods, no blizzards, no fogs, no cyclones, no hail storms, no thunder storms, no hot winds, no northers, no winter rains, no grasshoppers, no malaria, no epidemic diseases, no prairie fires, no snakes, no sunstrokes.

Send for maps and illustrated pamphlets, giving full particulars.

Pecos Irrigation and Improvement Co.,

EDDY, NEW MEXICO.

☞In responding to this advertisement mention GLEANINGS

EARLY QUEENS FROM TEXAS.

From my choice 3 or 5 banded stock. My bees are very gentle, good workers, and beautiful. Safe arrival and satisfaction guaranteed. One untested queen, March and April, $1.50; May, $1.00; later, 75c. Orders booked now; money sent when queens are wanted. Send for price list. 4a

J. D. Givens, Lisbon, Tex.

Please mention this paper.

TEXAS.

Queens by return mail a specialty. Untested, March, April, and May, $1.00 each; six, $5.00; after, 75c each; six, $4.20, or $8.00 per dozen. Discount on larger orders. Contracts made to furnish certain number weekly. The above are the three-banded Italians. I also breed the five-banded strains at above price except tested, of which I will have none till April 15th. A few fine breeders, either race, $5.00. I have changed my postoffice from Farmersville, Texas, to Floyd. Money-order office, Greenville. ***JENNIE ATCHLEY,***

1tfdb *FLOYD, HUNT CO., TEXAS.*

Wholesale and Retail Manufacturer and Dealer in BEE-KEEPERS' SUPPLIES.

ONE-PIECE SECTIONS A SPECIALTY, AS GOOD AS THE BEST.

Send for catalogue. ***W. E. SMITH,***

5tfdb *Successor to Smith & Smith,*

KENTON, HARDIN CO., OHIO.

In writing advertisers please mention this paper

Bee-Hives and Sections

A specialty. Foundation, Smokers, etc., in stock. Send for new list, free.

4tfdb **W. D. SOPER, Jackson, Mich.**

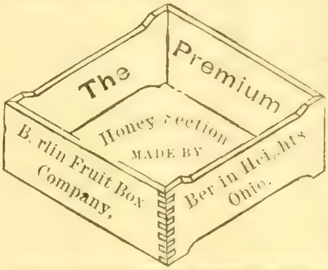
POULTRY. Choice Fowls and Eggs for sale at all times. Finely illustrated circular free. GEER BROS. St. Marys, Mo. 21tfdb

LOCATION

Is a big *point*, in supplying goods; ours gives you low freight rates. As we sell low, you should have our circular of supplies. 1-18db

I. J. STRINGHAM, 92 BARCLAY ST., N. Y.

Please mention this paper.



BEE SUPPLIES and all kinds of Berry-packages, boxes and baskets. We make a specialty of one-piece sections, and wood separators. Address

BERLIN FRUIT BOX CO.,
Berlin Heights
Erie Co.,
Ohio.

$4 or $5

Will buy ONE HIVE OF ITALIAN BEES AND QUEEN. Simplicity Hive and Frame or Hoffman Closed-End Frame and Hive.

JOHN A. THORNTON,
2-7db Lima, Illinois.

Please mention this paper

EARLY QUEENS and BEES
FROM THE SOUTH.

1 untested queen,	April, $1.00;	May, $1.00
3 " "	" 2.75;	" 2.50
1 tested "	" 2.00;	" 1.50
3 " "	" 5.00;	" 4.00

Best Select Tested for breeding, $3.00.

Two-frame nuclei, with any queen, $1.50 each extra. Safe arrival guaranteed. Special rates to dealers.

W. J. ELLISON, 6-7-8d
Catchall, Sumter Co., S. C.

Please mention this paper

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SPECIAL NOTICES.

GREINER'S SECOND EDITION OF THE NEW ONION CULTURE.

This is just at hand, and contains 15 more pages than the old edition, and pretty much all that is new in the matter up to date. The author has kindly put several extracts from GLEANINGS in his new edition. The price is the same as before—30 cts. per copy, or 35 if sent by mail. We have a limited number of the first edition, which we will offer for 20 cts., or 25 by mail. The latter contains all the directions that are really important for raising onions on the new plan.

CLOVER SEED.

When our last issue was printed the market on peavine and medium clover was about at its height. It has since declined somewhat, so that we are now able to offer peavine at $8.00 per bushel; $15.50 for 2 bushels; $4 20 for ½ bushel; $2.25 per peck; 18c per lb., bag included. We still have a good supply of alsike seed at the same prices as heretofore—$20.00 for 2 bushels; $10.50 per bushel; $5.40 per ½ bushel; $2.80 per peck; 20c per lb., and at this price it is cheaper to sow than the large clover at above price; that is, for the same money you can seed more acres.

MAPLE SUGAR AND SYRUP.

We have had a splendid trade in these products so far. We have been obliged to delay some orders for second-grade sugar, as the most of that brought in was of the very best quality. With the exception of two or three orders for second grade we have been able to supply orders promptly; and if any of our readers still want either sugar or syrup we can furnish it promptly as follows:

No. 1. Best maple sugar, 9c per lb.
No. 2. Good maple sugar, 8c per lb.

Half a cent less in 50-lb. lots; 1c less in barrel lots of 300 lbs.

Choice maple syrup, $1.00 per gallon; $8.50 for 10 gallons; 80c per gallon in 20-gallon lots or more, all in gallon cans.

PAINT FOR BEE-HIVES.

After much experimentation, and a careful study into the paint question, we offer a mixed paint prepared especially for bee-hives. It will not chalk or flake off, and we guarantee it to be free from adulterants, such as whiting, barytes, lime, and other substitutes that do not add to the enduring qualities of the paint. Our paint is made of strictly pure lead, strictly pure zinc, and genuine French ocher of about equal proportions, mixed in pure linseed oil. It is generally recognized that there is no pigment more permanent than French ocher; and this, combined with zinc and lead, makes a most durable combination. The resultant tint is a pale straw color. Price: Pint, 35c; quart, 60c; half-gallon, $1.00; gallon, $1.75. Half a gallon will cover ten No. 1 Dovetailed hives two coats.

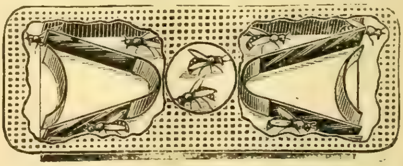
THE NEW ONION CULTURE, AND SELLING ONION-PLANTS.

This seems to be the absorbing topic just now—not only with the catalogue-makers, but dealers in general. The market is almost cleaned out of Prizetaker seed, although we have enough to last for a little while, and hope to be able to get some more. As there is some jangling in regard to whether Prizetaker and Spanish King are one and the same thing or not, we are using at present the Prizetaker seed straight from William Henry Maule himself. I believe, however, that many of you will be better pleased with the White Victoria. It is not so large, but it is so wonderfully handsome; and, by the way, this reminds me there is going to be a tremendous demand for onion-*plants*. I think they can be sent by mail just as safely as cabbage and celery, and we are planting heavily in order to be able to furnish them at the following price—5 cts for 20; 20 cts. per 100; $1.50 per 1000. If wanted by mail, add 5 cts. more for postage on 20 lots; 15 cts. more on 100 lots, and $1.00 on 1000 lots. Perhaps you had better try experiments first by ordering 20; if these reach you all right, and grow without any trouble, then you can try lots of 100 or 1000. They will be fully as hardy as cabbage-plants, I think, and may therefore be set out in the open field at the same time. Of course, onion-plants will be sent out right from the seed-bed; they need not be transplanted as cabbage, celery, tomatoes, etc., are.

OUR NEW BOOK ON TILE-DRAINING.

After many delays it is just about finished; and if you have only a little ditching to do it will certainly pay you to invest the small sum of 40 cents in the book. As an illustration, a few days ago I sent a big strong man who has done ditching, and thought he knew how, out into the lot to dig where I had previously drawn a string for him to go by. It was two or three hours before I got ready to come around and inspect. I found him making little progress in trying to dig the hard clay with a *pick*. I took the spade given him at first, and in five minutes taught him to throw out the dirt a full spade depth almost as fast as he could handle his spade, and this, too, in ground so hard he thought he would have to use the pick. Had he tried to push his tile-spade into the ground with both edges in the clay it would have been impossible, even if he had put his full weight (200 lbs.) on top of the spade; but by putting only one edge in the clay, leaving one edge clear, he managed it easily, and the dirt dropped from his spade without a bit of trouble; whereas, by the old plan the clay would stick to the spade so as to have to be cleared off with a trowel almost every time. The book explains all of this by drawings so plain that any one will "catch on" in an instant. Why, since I have learned how to do it as friend Chamberlain does, I find it just fun to dig in the hardest ground, and the labor isn't severe and exhausting either. This one item, it seems to me, ought to be worth many times the cost of the book; but aside from this the book considers every thing pertaining to tile-draining, brought up to the present date, including all recent improvements. Price 40 cents by mail, postpaid.

Hastings' Lightning Bee-Escape.



Send for sample of Hastings' "Lightning" Bee Escape, and you will be convinced that it is the best and most practical escape yet produced. It will clear the supers in a short space of time (2 to 4 hours), and it is impossible for the bees to clog the passage, as they can not return. Each escape guaranteed as represented. Price, by mail, each, $0.20; by mail, per doz., $2.25. Full directions with each escape. Electrotypes furnished free for dealers' catalogues. Write for discount. 7-12db
M. E. HASTINGS, New York Mills, Oneida Co., N. Y.

Bee-Keeper's Supplies.

Hives, Honey-Cases, Sections, and Frames. We are the only concern in Southern California who make a

SPECIALTY OF BEE-KEEPERS' MATERIAL.

Agents for the white basswood 1-lb. sections. Send for catalogue and price list.
6-13db **Oceanside Mill Co., Oceanside, Cal.**

HONEY COLUMN.

CITY MARKETS.

PORTLAND. *Honey.* There is very little change to note since our last. Stocks are very light, but the demand is also correspondingly light. Fancy white comb might, however, be forced a cent a pound higher than regular quotations. The weather for past month has been all that apiarists could desire. The hills are covered with wild flowers, and the almond and peach trees are in full bloom. Prices remain as follows: White comb, 1-lb., 15; 2 lb., 14; light amber, 1-lb., 13; 2-lbs., 12. White extracted, 7; light amber, 6½. *Beeswax*, 25.

Mar. 12. LEVY, SPIEGL & CO.,
Portland, Or.

MINNEAPOLIS. *Honey.*—Supply light. There are very few lots of fancy white clover on the market. There is a large quantity of dark honey of both comb and extracted. Fancy white clover, in 1-lb. sections, 16@17; choice, 13@15; dark, 10@12; dark, broken, bad order, 5@7. Extracted, dark, 7; light, 8@9. *Beeswax*, not wanted at any price.

Mar. 14. J. A. SHEA & CO.,
14 & 16 Hennepin Ave., Minneapolis, Minn.

SAN FRANCISCO.—*Honey.* Trade very quiet; stocks of extracted light, and will most likely be consumed before new crop arrives. No inquiry for comb honey whatever, and stocks in excess of demand. We quote: Extracted white, 6@6¼; light amber, 5½@5¾; amber and candied, 5@5¼. Comb honey, 2-lbs., 7@11; 1-lb., 10@11½.

SCHACHT, LEMCKE & STEINER,
Mar. 25. San Francisco, Cal.

ALBANY.—*Honey.*—We have received quite a number of consignments of comb honey recently, with instructions to sell at once; but there is very little demand, and it is difficult to make a sale except at very low prices. Extracted honey in good demand with a very small stock on hand. We quote: White clover, 11@13; mixed, 9@10; buckwheat, 7@8. Extracted, light, 7@8; dark, 6@7. *Beeswax*, 26@28.

Mar. 22. CHAS. MCCULLOCH & CO.,
Albany, N. Y.

NEW YORK. *Honey.* The market for honey is very quiet; very little selling. In fact, there is such a small demand for it just now that we can hardly quote it to the satisfaction of the producer. Fancy, 1-lb., 11@13; 2-lb., 10@12; fair, 1-lb., 9@10; 2-lb. 9@10; buckwheat, 1-lb., 8@9; 2-lb., 7@7½. Extracted honey, clover and basswood, 6½@7. Buckwheat, 5½@6. *Beeswax*, 28@29; in fair demand.

Mar. 23. CHAS. ISRAEL & BRO.,
New York.

MILWAUKEE. *Honey.* The demand for honey has not been as good the past 60 days as was expected, and is now slow. The supply is average, while the common qualities seem to be the largest, and very fine not very large. Quote: Choice 1 lb. sections, 15@16; common, 12@13. Extracted, white, barrels, 7; kegs, 7½; pails, 7½@8. *Beeswax*, wanted, 23@25.

Mar. 21. A. V. BISHOP,
Milwaukee, Wis.

CINCINNATI. *Honey.* No change since our last. Demand is fair for extracted, at 5@8 on arrival. There is a fair demand, and a good supply of comb honey at 13@16 for best white in the jobbing way.

Beeswax is in good demand, at 23@25, for good to choice yellow on arrival. CHAS. F. MUTH,
Mar. 21. Cincinnati, Ohio.

CHICAGO.—*Honey.*—Demand fair for season, and stock of honey is not large; should there come a brisk turn it would clean up the market. Choice white brings 15c, and fancy 16; dark to black is not salable at any certain figure. Extracted, 6@7@8, according to the body and flavor. *Beeswax*, 27.

R. A. BURNETT,
Mar. 21. 161 So. Water St., Chicago, Ill.

KANSAS CITY.—*Honey.*—Demand poor, with a large supply of comb. We quote: Comb, 1-lb., fancy, 12@13; dark, 8@9. Extracted, white, 7; dark, 5@6. *Beeswax*, none on the market.

Mar. 21. HAMBLIN & BEARSS,
514 Walnut St., Kansas City, Mo.

DETROIT.—*Honey.*—Comb honey is dull and lower. It now sells at 11@12½ for white; dark grades almost unsalable. Extracted, 7@8; not much in sight. *Beeswax*, in fair demand, 26@27.

Mar. 21. M. H. HUNT,
Bell Branch, Mich.

SAINT LOUIS. *Honey.* Inquiries for strained were frequent, and business more satisfactory. No quotable change in values. *Beeswax*, prime, 27½.

Mar. 21. D. G. TUTT GRO. CO.,
St. Louis, Mo.

BOSTON.—*Honey.* We quote you our honey-market as being well supplied, fair demand. One-pound combs selling at 13@15; no 2-lbs. on hand. Extracted honey, 7@7½. *Beeswax*, none.

Mar. 26. BLAKE & RIPLEY,
Boston, Mass.

Thousand pounds choice, light-colored, extracted honey at 7c per lb. BYRON WALKER, Capac, Mich.

FOR SALE.—20 lbs. extracted clover honey, in new buckets, for $2. By the barrel cheap.
6-7d B. T. BALDWIN, Marion, Ind.

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SEND TO THE
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Manager, Greenfield, Mass.

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Queens reared and tested in the fall of '91, $1.50 each. Safe arrival guaranteed.

Misses S. & M. BARNES, Piketon, Ohio. 7-8-9d

TESTED ITALIAN QUEENS.

Bred for business and general good qualities, of last year's raising, $1.00 each; $10.00 per doz. Hybrids, 25 cts. each. 7-8d
T. W. LIVINGSTON, Dalton, Whitfield Co., Ga.

I WILL SELL a few stocks of Pure Italians in good L. hives, on 7 frames, at $5.00 each.
C. G. FENN, Washington, Conn.

FREE! Our catalogue of Italian, Punic and Golden Carniolan Queens. Our Self. Swarm-hiver is the only one that has ever hived a swarm of bees.
7d H. ALLEY, Wenham, Mass.

DID YOU EVER SEE

One of our 5-banded red-clover queens? 100 lbs. of clover honey in poor seasons. Send for descriptive circular free. LEININGER BROS.,
7tfdb Ft. Jennings, Ohio.

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7-16db MRS. A. A. SIMPSON, Swarts, Pa.

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Free. 28-page **RESTRICTOR** book. How to avoid swarms, brace-combs, and losses in winter. How to get bees into sections in one hour; and rear queens in full colonies, etc., same old fixtures. C. W. DAYTON, Clinton, Wis.
24-23db Please mention this paper.

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5d **LUTHER & HORTON, Redlands, Cal.**
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FOR 1892 AND A FINE, TESTED, ITALIAN QUEEN, OF LAST YEAR'S REARING, FOR $1.75. EITHER ALONE, $1.00. FOR $2.00, THE REVIEW, THE QUEEN AND THE 50 CT. BOOK, "ADVANCED BEE CULTURE," WILL BE SENT. W. Z. HUTCHINSON, FLINT. MICH.

P. S.—If not acquainted with the REVIEW, send ten cents for three late but different issues.

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FROM our branch Apiary in Texas, which is three miles from any other bees, and none but the **best FIVE-BANDED Golden Italian Queens** used to rear Queens and Drones. Our bees are the gentlest, best workers, and most beautiful bees known. Safe arrival and **entire** satisfaction guaranteed. one Warranted Queen, March and April, $1.25; 6 for $6.00. If you want the **best,** send for our circular **at once.** 1-24db

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Please mention this paper. 1tfdb

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Are wintering well, and, as usual, I will sell a limited number of them to reduce stock to the required number. Each hive shipped to my customers will contain a full prosperous colony of Italian bees, with a last year's tested queen, on eight Hoffman frames of brood and honey. As my main object in handling bees is honey, we raise all our queens in full colonies from cells built under the swarming impulse, using the choicest and most profitable stock to breed from.

Safe arrival guaranteed in May and first half of June. For terms please address

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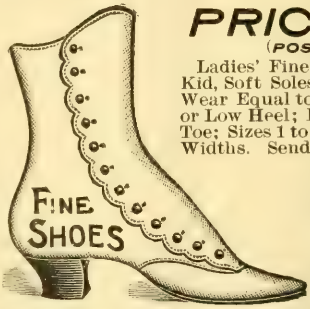

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DOVETAILED HIVES AND ITALIAN QUEENS.

Send for price list of Italian Queens, Drones, Hives, Smokers, Foundation, etc. Finest breeding queen, after March 1, $4.00. Tested, $2.00; 3 for $5.00. Untested, in April, $1.00; 6 for $5.00, or $9.00 per dozen by mail. Safe arrival guaranteed. Orders for Queens booked for 20 days or more, 5 per cent discount. Make money orders payable at Clifton.
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BEE SUPPLIES RETAIL —AND— WHOLESALE.

Everything used in the **Apiary.** Greatest variety and **largest** stock in the West. New catalog, **54** illustrated pages, free to bee-keepers. E. KRETCHMER, RED OAK, IOWA.
In writing advertisers please mention this paper.

ELMER HUTCHINSON

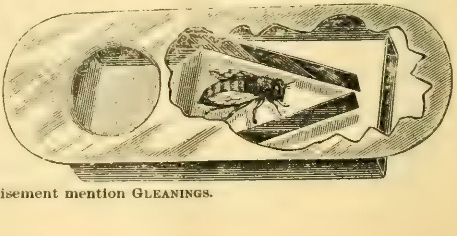
Has moved to VASSAR, TUSCOLA CO., MICH. He can furnish untested queens in April and May, raised from one of his Golden Italian 5-banded queens, that took FIRST PREMIUM at the Detroit Exposition the last two years, for $1.15 each, or 6 for $5.00. Orders will be filled for me in April and May by a queen-breeder in the South, who has one of my best breeding queens. Orders promptly filled and safe arrival guaranteed. Make money orders payable at Vassar. 7-10db

Porter's Spring Bee-Escape.

We guarantee it to be the best escape known, and far superior to all others. If, on trial of from one to a dozen, you do not find them so, or if they do not prove satisfactory in every way, return them by mail within 90 days after receipt, and we will refund your money.

PRICES:—Each, by mail, postpaid, with full directions, 20c; per dozen, $2.25. Send for circular and testimonials. Supply dealers, send for wholesale prices.

10tfdb *R. & E. C. PORTER, LEWISTOWN, ILL.*



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A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS
ILLUSTRATED SEMI-MONTHLY
PUBLISHED BY A. I. ROOT
$1.00 PER YEAR MEDINA OHIO

Vol. XX. APRIL 1, 1892. No. 7.

STRAY STRAWS

FROM DR. C. C. MILLER.

KEEP SWEET, no matter how warm the discussion.

METAL COMBS again. This time they are invented in Germany.

EMMA SAYS that Doolittle's as near right as any, if he *is* all alone. Emma's a girl of pretty good judgment.

GOOD NATURE seems to be one of the prominent features that characterize the discussions of bee-keepers nowadays.

DO BEES SLEEP? The *Centrallblatt* thinks they have no need of sleep, at least not in summer. I wouldn't be a bee.

THE WINTER has not been very severe in Northern Illinois. Hasn't gone down as low as some winters by nearly 20°.

THE STANDARD FRAME of the British (14x8½ inches) has 119 square inches of surface; the French, 186; and the Simplicity, 161 square inches.

February was warm enough so I kept cellar door open day and night for a week. But the middle of March shows 8 to 12° above zero, morning after morning.

COST OF HONEY is hardly worth more discussion. So long as the matter is viewed from distinctly separate standpoints, there never can be any agreement.

I DIDN'T WANT the senior editor to get back north before danger of spring dwindling was over. Still, it seems good to have his signature *A. I. R.ed* throughout GLEANINGS.

"WE ARE RAPIDLY coming to the conclusion that bees need more ventilation in the cellar than many suppose."—*Foot-note on page 203.* All right, come on. I've been there for years.

Did the windmill spin faster
At sight of its master?
Did the cabbage forth shoot
When it saw A. I. Root?

A CORRESPONDENT of *B. B. J.* came near losing his life by means of an oil-stove without having the smoke carried off. No wonder those who have tried oil-stoves to heat winter repositories are down on artificial heat.

WINTER HEATING, which caused such a *heated* discussion in Germany, is settled down to the conclusion that, in the hands of Pastor Weygandt, it is a success, but he does not claim it as a thing for general use everywhere. For the majority, it is thought to cost more than it comes to. This doesn't refer to keeping cellars warm in winter.

"THE SWARMING FEVER is not present, we know, except as developed by external causes," says J. H. Larrabee, p. 194. No, we don't know—well, that is, what do you mean by external causes?

DON'T BE FOOLED by one or two warm days into bringing your bees out of the cellar too soon. Let 'em roar in the cellar if they want to. Just open all up at night and give them a good airing.

PHACELIA TANACETIFOLIA, the California honey-plant, according to two writers in *L'Apiculteur*, is not only a valuable honey-plant in France, but an excellent forage-plant. Bro. Larrabee, there's a field for experiment.

THAT TRIP up Wilson's Peak makes thrilling reading; but don't you think any man not in the best of repair who should undertake such a trip would be a good deal of a f—er—er don't you think he oughtn't to undertake so much?

IT DOES SEEM that we ought to come to some sort of agreement about grading before the subject is dropped. Some one may yet strike a lead that will help us out, and an hour or so in a convention will hardly settle it satisfactorily unless there is more previous discussion.

OLD BEES, according to Cantor Beck, in *Lpz. Bztg.*, winter as well as young ones. He united a lot of old bees and gave them a queen, and they lived as well as others, being the third colony, among 30, ready to swarm the next season. But wasn't this an unusual experience?

INCORPORATION, it seems, is not the thing objected to by the O. B. A. It's only that there wasn't more of it. R. McKnight says, in *C. B. J.*, "We never had any objection to our brethren across the border incorporating." But he thinks it ought to have been done by act of Congress.

THE CONGRESS OF PARIS agreed upon three frames as standard—a *high* frame 30x40 centimeters; a *low* frame 40x30, and a *square* frame 35x35. The *high* is for mountainous or cold regions; the *low* for hot, and the *square* for medium climates. The square frame is about 13¾ inches square.

LARRABEE proposes to start at the root of things by controlling fertilization in order to control qualities in bees. Control of fertilization seems hopeless; but its importance warrants much trial. But please, Bro. Larrabee, don't refer to N. W. McLain's experiments as any thing reliable.

THE BOARD of Lady Managers of the World's Fair have appointed ten ladies as a committee on "Bees and Bee Culture." They are Mesdames Olmstead, Doolittle, Howes, Cantrill, Shepard, Couzins, Hartpence, McCandless, Rue, Bartlett. Nice ladies, without doubt, and very properly behaved; but somehow I don't remember ever hearing of any one of them as a bee-keeper.

THAT CHEAP HARVEST DRINK, that I quoted from *C. B. J.*, J. A. Green feels so sure is all wrong that I'm afraid he is right. Hereafter, before I give a recipe for any drink I think I'll first drink a few quarts of it myself. I don't think the drink in question ought to be called "cheap," for you must swallow about a quarter of a pound of honey to get a pint of drink.

FAIR PLAY has been shown on the battlefield of the "cost" discussion; but Hon. R. L. Taylor, unwittingly no doubt, indulges in foul play when he accuses Doolittle of inconsistency in changing from 313 days at $1.25 to 81 days at $5.00. I think Doolittle had previously explained that, in one case, he charged for the whole year at a price that could be so earned, and in the other case merely for the days actually employed at expert wages. That's fair, isn't it?

WHAT OUGHT THE GOVERNMENT TO DO FOR APICULTURE?

VALUABLE SUGGESTIONS FROM P. H. ELWOOD.

Apiculture is a branch of agriculture, and as such is entitled to the same fostering care extended by the government to other branches of the same occupation. As a pursuit it is a new comer, an "infant industry," and we should therefore expect it to be treated with exceptional favor. Instead of this, however, the three hundred thousand bee-keepers of this country have been almost wholly neglected. There seems to have been enough money to spend on promoting the culture of silk, an article of luxury, but nothing for the production of honey, the most healthful sugar food in the world. Millions of dollars are freely offered for the production of cane sugar, an industry that needs the fatherly care of the government no more than does ours, if, indeed, it needs it as much. Bee culture is peculiarly important because it saves a product that, unless gathered by the honey-bee, goes to waste; also because of the offices the bee performs in the fertilization of the flowers of fruits, grains, seeds, etc. These indirect benefits are probably quite as important as the primary work of honey-gathering. As mentioned in my last, we have now under Secretary Rusk an effort by the government to protect us, for it has within the past year employed two able bee-keepers, Mr. Larrabee at the Michigan Agricultural College, and Mr. Frank Benton at Washington, to look after our interests.

This well-intended effort, however, is practically fruitless, since both of these men are under the direction of Chief Riley, of the Division of Entomology, who, no matter how distinguished as an entomologist, can not be expected to know much about practical and scientific bee-keeping, nor to be able to intelligently supervise the expenditure of money appropriated for experimental work in advanced bee culture. In proof of this assertion, notice the misdirection of the efforts of these two efficient men. Mr. Larrabee's time has been so fully occupied with the care and manual labor of the large Michigan College apiary as to leave him but very little time or energy for experimental work. Mr. Benton, I judge, has a desk in some dark corner of the Division of Entomology, and he has no bees nor other facilities for practical work. He has had enough light and time allowed him, however, to prepare a bulletin, to be sent to farmers and others making inquiries as to how they shall commence bee-keeping. Now, we do not need this kind of work at all, for we have plenty of handbooks and journals devoted to A B C instruction. What we need is advanced work—work that private individuals can not perform because of expense, or lack of time or facilities for doing it. We do not care to have the government make any efforts to increase the number of bee-keepers until after it shall have made successful efforts to enlarge the markets for their products. We hardly think that, in the fostering care the government extended to the cotton, iron, and other manufacturers, it ever became necessary to issue bulletins describing the best course for beginners to pursue in engaging in these occupations. The government can and should help us by making original investigation on the uses of honey in the arts and manufactures, and by collecting and disseminating information already known to the few, on these points; also by investigations as to the healthfulness of honey, by comparing its digestibility with that of cane-sugar syrup and other sugar and heat producing foods. The various diseases of bees, particularly the pest of foul brood, should be investigated, and methods of treatment disseminated. The Canadian government has a foul-brood inspector, and also grants pecuniary aid to its national society for their efforts in promoting advanced bee culture. Some parts of our country are said to be as badly afflicted with this contagious disease as is Canada; but we get no help, although it is expected that the Bureau of Animal Industry, a division of the Department of Agriculture, in charge of the diseases of domestic animals, etc., will call for an appropriation of one million dollars from the present congress.

The important part the honey-bee performs in the fertilization of flowers should be so fully investigated as to make the results authoritative, and the report spread broadcast among farmers and fruit-growers. Bee-keepers now suffer serious loss from the prejudices of these classes who should be our strongest friends and supporters.

A number of disputed as well as a number of undiscovered functions in the physiology of the honey-bee should be definitely established. It may be said that these do not concern the ordinary bee-keeper. Not so; for I have recently had occasion in practical bee-keeping to refer to several of the most obscure. An experiment apiary, conducted by so practical and skillful a bee-keeper as Frank Benton, ought also to establish many useful points in practical bee-keeping. The different races of bees could be tested, and trustworthy reports made as to their merits, without compelling a multitude of bee-keepers to invest of their hard earnings in making what are usually very imperfect tests. The trial of the so-called Punic bee by the bee-keepers of this country will probably cost thousands of dollars. Mr. Benton, with a few swarms of bees at his command, quite likely could have decided on their worthlessness at an expense of less than twenty-five dollars.

A statement has recently gone forth from one of our most distinguished State entomologists, Dr. Lintner, that it would be desirable for the destruction of certain insects that fruit-trees be sprayed with arsenical mixtures while still in bloom, and that he refrained from advising spraying at this time only because of the assertion of bee-keepers that it poisoned their bees. The proof of this poisoning, while conclusive with bee-keepers, was not wholly so with Dr. Lintner (it is feared it will not be with fruit-growers), and he asked that conclusive experiments be made during the coming spring. As the danger is imminent, and concerns the bee-keepers of many States, it would seem very appropriate that these experiments be conducted at Washington, and the results put into the hands of fruit-growers, so that, if we find it necessary to go into court, we may have proof that these untimely sprayers had knowledge of the crime they were committing.

It is not my purpose to discuss the merits of our system of governmental assistance; but it seems to me that, since other industries are reared and fattened at the government crib at our expense, we might now receive back a small percentage of the taxes levied on us for the maintenance of our older and stouter brothers. Apiculture is now a section in the Division of Entomology; so at one time was ornithology; so was silk-raising. Both have been raised to independent divisions. I leave it to any intelligent man whether our pursuit is not of more importance than either or both of these divisions. I should be glad to fortify my position with statistics, but, unfortunately, we have none. The census enumerator informed me that he had no place on his blanks for honey. The least that we can ask is, that the section of apiculture be raised to an independent division, and that it be put under the supervision of some practical bee-keeper like Benton, of sufficient scientific and executive ability to perform the duties of the office. I want to emphasize the fact that we shall have nothing satisfactorily done until the work is in charge of a bee-keeper. To ask an entomologist to superintend this work is like putting a lawyer in charge of a hospital, with a corps of physicians doing his bidding. A first-class experiment apiary should be established at Washington. Larrabee, or some other good man, should be called in as an assistant; and a chemist, botanist, and other help should be at the service of the superintendent at all times. Bulletins should be issued to bee-keepers, giving results of work done, and also giving crop reports, gathered with a thoroughness and exactness impossible with the private enterprise now collecting them. Lastly, congress should remember the blow they dealt us when they removed the duty on cane sugar, the chief competitor of honey, and provide liberal means for carrying on this apicultural experiment station in the most thorough manner possible.

The State of New York expends about $12,000 yearly on farmers' institutes; $40,000 on experiment stations, and $92,000 on the dairy commission. Bee-keepers help pay for all this, but get no benefit. In justice the State ought to appropriate at least a thousand dollars to be expended under the direction of practical bee-keepers in holding one or more bee-keepers' institutes or conventions, and for other necessary work in advanced bee culture. Other States should do likewise. Illinois has already set the example. Our country is so large that it is difficult to maintain a national organization. With State aid this could be made a delegated body, with the traveling expenses of delegates paid. P. H. ELWOOD.

Starkville, N. Y.

[Mr. Elwood has so thoroughly and ably covered the subject above, that we have but little to add. We heartily indorse what he says, and hope the article will be widely copied, not only in the bee-journals, but in the agricultural papers also. Silk culture, in point of magnitude and importance, is small in comparison with that of bee culture. But perhaps the only reason why we have not risen to greater recognition at the hands of the government is because bee-keepers have not taken the pains to properly present their needs. Let's see, Mr. Elwood, Mr. Hersheiser, and Capt. J. E. Hetherington were appointed by the N. A. B. K. A. at the meeting in Albany to look after these matters. We are glad that they are already at work. GLEANINGS will gladly assist in any way she can.]

THE VALUE OF DRAWN-OUT COMBS; WHEN AND HOW TO SECURE THEM.

A MOST VALUABLE ARTICLE ON THE APIARIST'S BEST CAPITAL; BY C. A. HATCH.

The best thing a bee-keeper can have in the spring, is plenty of hives full of bees; and the next best thing is plenty of good combs to go with them. The difference between 20 good colonies in as many empty hives (no combs), and 10 good colonies in 10 hives full of drawn-out combs, is not so much as some might think; how much do *you* think? Every bee-book has its chapter on increase of colonies; but how many have a chapter on increase of combs? Yet we can but give it second place in importance to the bee-master. True, if you have bees enough, in time you will get the combs; but to get them at the least expense of bee-force, which is our capital stock, and in the shortest time, is the object of this article. If we lose the use of our bees in honey-gathering because all their force is used up in comb-making, we have lost the use of our capital for that season; and, if a hard winter follow, it may be for the next year too; so time becomes an important consideration. I remember one year in which, during basswood bloom, good colonies filled an extracting-super in two days chock full, and yet the flow continued. Having only one set of combs for each colony, the bees were forced to spend almost time enough to fill another set of combs before the honey already gathered would do to extract. In this instance, one set of combs was almost as good as a colony of bees. This was an unusual year, but I have found that a surplus of empty combs in the spring is a grand thing to have, if we do not get them by the bees dying to make a surplus.

How many combs are profitable? After careful thought and observation I have fixed on three extra hives full for each colony, spring count, as just about the right number. These, with what foundation can be used advantageously during the season, ought, with good management, to insure every bee opportunity to do its very best, and not hang out around the entrance as a sign there is no room within.

HOW TO USE THEM.

At the risk of getting the cart before the horse, and telling how to use the combs before the way of getting them has been told, we will say right here that one set of combs is to be used for increase and two for surplus storage; not that we mean that each swarm is to be hived on a full set of combs, but one set is to be judiciously used for the benefit of the swarms or increase of bees; but to tell just how these are used would require an explanation of my entire method of increase of colonies, and would make this article too long.

The other two sets of combs are to be used as extracting supers for the strongest colonies on the tiering-up plan.

COMB FOUNDATION.

I regard comb foundation as an advance in bee culture second only to the movable-frame hive in importance, and it is to this we must look mainly for our new combs. But to get the most advantage from it, care and judicious management are required. I have seen instances where foundation had been used so as to be almost if not quite a damage to the bees. But I have noticed that the ones who used most foundation are, as a rule, the successful ones.

HOW TO USE IT.

In full sheets, always. If you have but ten sheets it is better to put nine in frames so as to fill them, and cut the other sheet into half-inch starters for the rest of your frames, than to divide the lot into quarter or half sheets. If this be done you are sure to get perfect combs as far as the foundation goes; and, remember, a comb once finished is good for all time so far as we are concerned. They are the foundation of your business, part of your capital stock, and let them be just as perfect as you can get. If the foundation is cut into strips to quarter or half fill the frames, the chances are, that, as soon as the bees get below the starter, drone comb will be built, and this is just what you want to avoid as much as possible; for I have noticed that, be just as careful as we can, and keep out all drone combs as a whole, there is sure to be enough in the hive. Either by the mice gnawing the combs, holes left from cutting out queen-cells, or some way, it gets there.

TWO WAYS ONLY TO GET COMBS.

1. Having the bees build them; 2. Using foundation and having them drawn out.

The difficulty with the first is in getting too many imperfect combs, either crooked or too much drone comb, and it is too slow. I fully believe that, up to a certain amount, say five or six combs, bees in a reasonably strong colony will make them entire with as little loss of force as in any other way. I believe with Dr. Miller, that a certain amount of wax is secreted any way, whether we save it or not; and if I were sure of always having vigorous young queens in *all* my swarms I would hive them all on empty frames only, for I am sure we lose bee force right there; but the loss is more than offset on the other hand by the imperfect combs and the annoyance of righting them. So, practically, we are reduced to the method of increase of combs; i. e., foundation.

WHEN TO PUT IN FOUNDATION.

Not too early in the season, usually not before swarming commences. A certain amount of heat, at least 100°, I think, is necessary to make the wax soft enough for bees to work out into combs; and up to June 1st to 10th the temperature of the hive is not high enough for wax-working—first, on account of the weather outside; and, second, on account of lack of numbers in the hive to maintain the required heat. Another reason why it must not be put into the hive too early is, that bees will not work on it but to a very limited extent before honey is coming in. True, some years we get honey from fruit-bloom and dandelions so as to give the bees quite a start; but this would better be used to fill the combs you already have with brood, to push things later on when clover is in bloom.

HOW MUCH AT ONCE.

Do not make the mistake of putting too much foundation in a colony at once. I went to see a bee-keeper last summer, and found plenty of his strongest colonies with eight full frames of foundation over them, while other colonies not quite as strong had none, and were really suffering for lack of room. What was his duty in this case? First, take out four frames of comb from the colonies having no foundation, giving these to the colony having eight frames of foundation, and giving the four frames of foundation (displaced) to the one losing the frames of comb, then all will be merrily at work, not having so big a job as to become discouraged; and the result is, eight frames of comb in less than half the time he would have had them if all left in one place, and he has saved all this time for the bees, which means more honey, and therefore more money. As a rule, not over two frames should be given to a colony at once, and not that if there are not bees enough to cover them entirely.

WHERE TO PUT IT.

Moderately strong colonies seem to draw out and finish up combs better than very weak or very strong ones; therefore of ten given colonies, if five were medium and five strong, I would take combs from the medium, substituting foundation and giving the combs to the strong, with, say, one frame each of foundation, for I have found that a colony strong in bees will draw out one or two frames of foundation at each time of extracting, at little if any loss of honey; and before I got all the combs I wanted, I made it a rule to give them at least one frame. Weak colonies should be made to draw out combs for the use of the strong ones. The few bees they have are compelled to remain at home to care for the brood, and maintain the heat of the hive, so they can be kept busy working for their more prosperous brethren, or perhaps *sisters* would be more appropriate. Always put foundation between frames of comb if possible, and near the center of the hive, if the colony will bear to be spread that much.

FALL HONEY AND COMBS.

The honey we usually get after basswood is dark, and brings but a small price in market; hence, this is one of the best times to crowd the bees in drawing out and finishing up combs, to be ready for the white honey the next year. If you can so manage that you have turned *all* this dark honey into wax, you have done well and increased your capital at the smallest possible expense. But here is a point of advantage few bee-keepers have taken, for a sale of foundation in August or September is very rare, and yet I have found it one of the best times to ge combs.

In closing I should like to emphasize three points mentioned as seeming to be of greatest importance of any: 1. Full sheets always; 2. Not putting too much in a hive at once; 3. Turning buckwheat or late honey into combs.

Ithaca, Wis., Mar. 3. C. A. Hatch.

[Mr. H.'s remarks smack strongly of experience; and so many things in it corroborate some of our own experiments during the past summer that we feel like putting the whole article in Italics. It should be borne in mind, that Mr. Hatch's hints have a special reference to the producer of extracted honey; and to such a one, drawn-out empty combs are his best stock in trade. Some of these things we have known of before; but it is necessary to have good things pounded again and again into our heads until we condescend to try them.]

PRODUCING EXTRACTED HONEY.

REQUISITES FOR; COST PER POUND OF EXTRACTED HONEY.

I am asked to answer the following questions: "What are the requisites for producing extracted honey?" "What kind of packages do you use in shipping and retailing the same?" "How do you dispose of the most of your honey crop?"

Now, friends, I don't know that I can handle this first question to suit all places. It covers a great deal of territory. Locations will vary somewhat, but the first and most important requisite is an abundance of honey-producing flowers from early spring until late in the fall. Here in the North, if I could have it to suit me, I should want to locate where there were large quantities of fruit-blossoms—apples, peaches, pears, plums, etc.—followed by red raspberries, gooseberries, and other small fruits, and these succeeded by dandelions and plenty of white clover and basswood. Then should follow plenty of fall flowers—buckwheat, goldenrod, heart's ease, smartweed, asters, etc. If we can not have all of these good flowers in plenty, get as many as possible. Of course, in the South the honey-bearing flowers will be different. Every country has its own flowers. But honey-flowers we must have, or we shall get no honey. The more flowers there are, the better.

The next important item is plenty of bees to gather the honey. What kind of bees is best? Now, to tell the truth, I don't know. I commenced with the blacks, and I must say they are hard to beat. I have tried several strains of Italians, some of which have done pretty fair work. But I think the hybrids are better workers than the pure Italians. I am now trying the Carniolans — the dark-colored ones. They have done first-rate for me the last two years. In fact, they have done the best of any bees that I have. My home yard of 100 colonies consists of Carniolans.

Now, after we have got in the right location, and have the bees, we must have an apiarist that knows how to handle the business; and, in my opinion, to secure the best results, the apiarist should own the bees; or, in other words, the owner should know all about the business. He or she may hire the most of the work done by others, but the owner should oversee every thing. Very much depends upon very small details. Every thing that is to be used when the honey-flow comes should be provided before the time it will be wanted. Have every thing ready—hives, extractors, and all other tools; also packages for the honey crop, and a place to store the honey. We have our packages now on hand to hold our next crop. We may not get a crop, but we must be ready. If we don't use the barrels this year, we may next. See to it that the bees are in first-class condition in the fall. Plenty of honey means good strong colonies in spring. A man, to be successful with bees, must have a liking for the work, so much so that he will pick up every thing on the bee business, and read it. Not that he is expected to follow all that he reads, but he may get a good deal from another's mistakes. I doubt whether any of us knows all there is to be learned about the business, so we must study and think, and act according to our best judgment. If we have more bees than we can work alone, hire help. We hire young men and boys. A boy twelve to fifteen years old can do first-rate work extracting honey, if he has some experienced hand to tell him just what to do. One good hand that has worked with the bees two years can take charge of two green boys and get good results from their labor. Our extracting season lasts about four to six weeks. We give a green boy twelve to fifteen years old $8.00 a month the first year. If he proves to be a good hand, next year we give him about $2.00 more per month. If he stays with us, we keep raising his wages up to $20.00.

Another important item in producing extracted honey is to have plenty of extra empty combs, so when the honey-flow comes we can tier up and give the bees plenty of room to store honey. We work our L. hives three stories high during the honey season. In the fall we take off one set and store them away until wanted the next year. In this latitude I take them off in October, and pack them away in the third stories, piled one on the other in our comb-room. If they were taken away from the bees much sooner than October, the moths would destroy them, unless we smoked them with sulphur. Combs packed away in a tight room where they will freeze hard are safe from the moths. I have kept them all summer with no signs of worms about them.

For shipping extracted honey we use oak barrels, iron-hooped, holding from 360 to 600 lbs. For our last crop we used some molasses-barrels made in the South. In these we put our dark honey, and sold it to the bakers. Our nice white honey we sell to dealers for table use. We also sell several thousand pounds at home, to farmers and city folks. We keep three stores in our town supplied with honey, put up in tin pails of different sizes—pint, quart, two, three, and four quart. We get the pails of A. I. Root.

COST OF PRODUCING EXTRACTED HONEY.

You ask me to give you the cost of producing extracted honey, and refer me to Messrs. Taylor's and Doolittle's articles on the cost of comb honey. I have records of the amounts of honey that we got for a long time, and how many bees we had each year; but what the crop cost per pound I can not even make a good guess on. In 1890 our honey cost us a dollar a pound; in 1891 we got 30,000 lbs., and sold at 5, 6, 7, and some at 8 cts. The crop gave us a living for the year, and about five hundred dollars over. What it cost a pound, I don't know; but I am sure it did not cost as much as we sold it for. The way we are fixed I can not get at the cost exactly. We have 20 acres of land to work, and often we get through with the bees, and get home before night; then we set all of our honey-boys at work on the place, hoeing and cultivating, killing weeds, etc. I think it would be very doubtful whether any one could tell just what a crop of honey costs. I am sure that no one can make a statement that would do for every year on the same location; then, again, locations differ much, and management would make a large difference. There is as much difference in bee-keepers as there is in other folks. If I write an article on any subject I want at least to satisfy myself that what I have to say is practical. Mr. Doolittle tries to make the cost of comb honey as big as he can. When he charges up $5.00 a day for his time, going to conventions, price of bee-papers, and time of reading the same, etc., why does he charge it all to the production of comb honey? If I am not mistaken, his queen-traffic brings him more money than his honey. Why doesn't he divide some of those expenses with his queen-trade? It is all guesswork. He doesn't know, I don't know, and who does?

E. France.

Platteville, Wis., March 7.

EXTRACTED HONEY.

WHAT INJURES ITS SALES; SHIFTLESSNESS OF BEE-KEEPERS, ETC.

On page 121 for Feb. 15, Mr. Geo. F. Robbins relates the observations and experience of his grocer who deals in honey. The grocer said that there would be nothing in offering premiums at fairs for honey extracted on the ground, seeing honey-extractors in operation, and that the way in which liquid honey was obtained would do nothing to remove the generally prevailing opinion that extracted honey is manufactured or adulterated. This is far from a reasonable conclusion to warrant belief. To see and to understand is to believe. All manner of people are convinced in this way. Within two miles of our place there is a city of 16,000 people; and as there is a pretty driveway from the city through our place, many people stop with "the man who keeps the fire-bugs," for honey. We always show these city folks the extractor, explaining how used; and if there is honey to extract, some is thrown out, that they may see the *how*. Some remark, "We have often heard of this way of taking honey, but had little or no faith in the story; but one must believe when he sees." These people become our best customers.

When the grocer stated to Mr. R. that "the only way to get the confidence of the people is to produce and put on the market honey of first-class quality," he was preaching logical doctrine. Here the man displays knowledge gained by experience. He is not the only person who has learned this lesson. The wise profit by this experience; but foolish, short-sighted men go on from year to year producing and putting on the market honey of an inferior quality, made so by lack of experience, want of judgment, or thoughtlessness. At one time the honey is extracted while thin, only in the condition of rank-flavored nectar, and often, in this state, no effort to place it where it might be improved by evaporation. Again, it is stored in shaded or damp rooms where both comb and extracted honey rapidly deteriorate. Who has not seen beautiful white combs gradually taking on that watery, unsightly—yes, sickly appearance? Honey left to the care of the bees never gets so, unless the hives are located in a damp, shaded place.

Extracted honey that is thin from any cause should never be stored in any other than shallow, open-mouthed vessels, then kept in a warm, dry, well-ventilated place; and the same theory holds good with comb honey.

No doubt the majority of bee-keepers take great pains to excel in the matter of producing and placing on the market honey of a first-class quality; but it is a fact, deplorable and injurious as it is, that many who are engaged in producing honey are careless and indifferent as to the quality of their product. The injury this class are doing to the industry is very great. It may sound harsh, but I must say they are a nuisance to the fraternity.

As we buy from producers and dealers in honey each season not less than 100,000 lbs. for our retail trade, we get some sorry experience. I'll give a sample or two. A party wrote us last fall that he could ship us 20 barrels of pure orange-bloom honey, mailing at the time a sample of it. When received, four barrels of the lot was about all palmetto honey, dark and ill flavored. Again, samples of mesquite honey of best quality were sent; and to this party an order was given; but a few cans of this lot was alfalfa, of the meanest kind. Other orders were sent to the same parties, but more and more alfalfa was put in each lot, the last being entirely alfalfa, dark and strong in flavor, and by no means "fit to set before a king."

Another lot received from a producer had been extracted in the nectar state, and then stored in cans reeking with the fumes of kerosene oil. This stuff may do to feed bees, but not to sell for table use, if a regard for one's reputation is thought of.

It is surprising how many there are who, for the sake of a little temporary gain, violate with impunity the principles of honor and fairness, forgetting that their betrayal of trust must eventually fall upon their own heads with crushing weight.

ADULTERATED HONEY.

As we sell honey in every town and city within quite a distance of us, we see much of the honey-markets. Within the last two years many city packing-houses have gone into the business of putting honey in tumblers and bottles. Some of this we find to be good pure honey; but for the most part it is a glucose mixture surrounding a small piece of comb honey. Does this honey, or stuff, detract any from our sales of choice honey? We think not; in fact, we are of the opinion that we sell more honey because of this adulterated stuff.

We call on a family to see whether they will buy honey. The question is asked, "Is it the strained honey?" Answering, we say, "Yes, we have either liquid or comb."

"Well," they say, "we don't want strained honey. We got some of it at the store, and that's a fraud."

Now, we give them a sample vial of just what we will bring them. Then to see them lift the frown, and say, "Oh! that's different; that *is* bee honey. If you bring us that kind you can depend on us for good customers."

Our reply is, "Yes; if, when delivered, you do not find it equally fine as the sample, you need not give us your money."

In this way we add another to our list of thousands of permanent customers who will buy no honey put up by packing-houses.

But, Mr. Editor, I would not discourage your efforts to bring to justice these robbers who are engaged in the nefarious scheme of bottling glucose with the lie "Pure Honey" pasted on the packages. J. A. Buchanan.

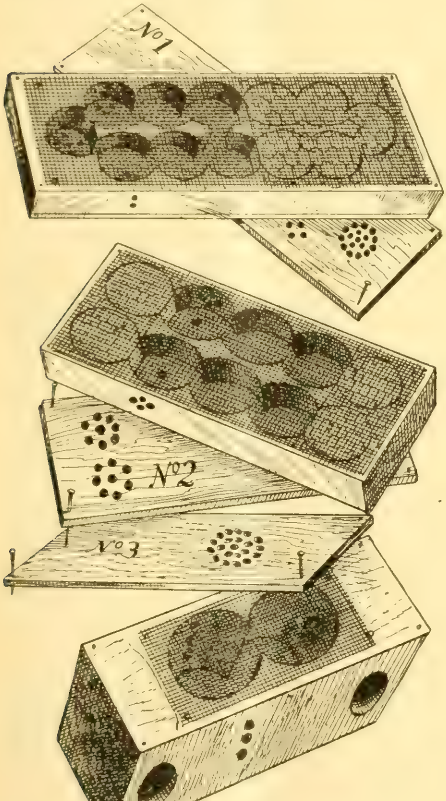
Holliday's Cove, W. Va., March 8.

QUEENS BY MAIL TO AUSTRALIA, 11,500 MILES AWAY.

CAGES.

In my last article I said that, according to my opinion, the size of the cage (5x2x1½) as given in the Postal Guide should not be specially considered when sending queens to Australia, as there was no law governing the matter regarding queen-bees to that place, other than having the packages they were sent in conform to what would be allowed in our domestic mails. Why I looked this matter up so closely was, that I am not just pleased with the "Root-Benton" cage, for the reason that the candy-hole is liable to become clogged with dead bees, which reason the editor speaks of on page 72 of Gleanings for 1891. Should this cage happen to so go on board of the steamer that the candy end is downward (which would be its tendency every time, that end of the cage being much the heavier), the result would be, that, should there happen to be any dead bees in the cage, they would fall down into the candy-hole, thus virtually cutting the bees off from their food, causing them to starve. I have evidence that this was the cause of the death of some that I sent, as those reporting to me speak of two of these cages as coming with "every bee dead, all bright and clean, with little of the candy eaten, and many bees wedged into the candy apartment."

This difficulty confronted me when sending to New Zealand in 1884, so I fixed the cages then used (2x2x5½) with a large candy-hole in either end, and the apartment for the bees in the middle. This gave the bees a chance to feed from either end of the cage. This old cage was all right on this score, but, to my notion, it confined the bees too much in a heap during the extreme heat they must endure in passing through the torrid zone; so in shipping this year I tried to overcome this difficulty. Accordingly a part of the queens were sent in the Root-Benton cage, a part in a cage 5¼x2¾x⅞, having ten holes bored in the same, with partitions throughout, so the bees could spread out all over the cage, except that part filled with candy; or, when cold, cluster up as compact as they please. Another part were sent in cages 7¼x3x½, having twelve holes in them, with partitions arranged as in the other; but with this one the candy was all put in one end, five of the holes being used for the same. This gave the bees seven holes to spread out in on the start, and more room as the candy was eaten. This cage was also provided with more thorough ventilation than any of the others, good ventilation being provided in two of the seven holes, to the amount used as a whole in the Root-Benton cage, while the extreme end hole was bored clear through, wire cloth being put on either side of it, so that the bees could come out in this part of the cage, and, by fanning their wings, cause a circulation of air throughout the whole cage, similar to the way they ventilate their hives from the entrance.



DOOLITTLE'S FOREIGN MAILING-CAGES.

I have been more particular in describing this latter cage, as all the cages of this description sent proved a success, the bees and queens arriving in fine condition in Australia after a voyage of 11,500 miles, and a confinement of from 37 to 40 days. The candy used in all of the cages was the Good candy. The candy-holes in all were coated with paraffine by pouring the same in them, when at a very high temperature. I like this better than putting on with a brush, for in this way the paraffine is forced into the wood to the depth of one-sixteenth of an inch or more, so there is no chance for the moisture in the candy to escape. Over the candy I placed a piece of thin comb foundation, pressing it into the wood all around, so that this candy apartment would hold water like a pail. Nine of the fifteen queens were sent to S. A. Bradley, Denham Court, New South Wales; three to Jas. McFarlane, Lyndhurst, Victoria; two to A. Walker, Redland Bay, Queensland, and one to R. J. Cribb, Brisbane, Queensland. Both of those to Mr. W. went alive, and were in flat cages. Mr. W. says that, of four others received from the United States, all were dead except four workers in one cage. The one to Mr. Cribb was in a flat cage, and that went through in fine condition. Of the three sent to Mr. McFarlane, two were in the Root-Benton cages and one in the flat cage. The one in the flat cage went alive, the two in the Root-Benton both dead. Of the nine sent to Mr. Bradley, three were in the Root-Benton cage and six in the flat cages. Of these, one in the Root-Benton cage went alive and four in the flat cages. Six of the fifteen queens went on the October steamer, four out of the six arriving dead; while of the nine sent on the August and September steamers, seven went alive. Mr. McF. writes that those sent him were evidently suffocated, and must have been in a closer mail-bag or in a hotter part of the ship than those sent him by Mr. Root, according to their appearance; while Mr. B. says, in speaking of my last shipment to him, "A circus and menagerie came in the same vessel with the queens, and all mail matter was crowded into all sorts of out-of-the-way places, which did not give the queens the usual chance of living." Understanding this state of affairs, it is a little suggestive that the four in the Root-Benton cages all died, while the two in the flat cages went alive. As Mr. Bradley seems to be a close observer, I think some remarks of his on the different cages will be of interest. Speaking of the half-inch cage he says: "This cage seems to come as near perfection as possible, the bees and queens in the same being as lively as if they had been confined only a few days." Of the seven-eighths cage he says: "It is very good, but would be better, I think, if the air-holes were a little larger, so as to allow freer ventilation." Of the Root-Benton cage he says: "The objections to this cage are, first, in having only one means of access to the stores. In one of these cages the queen was dead in the food compartment, and the hole behind her was blocked with bees. Second, owing to its block form it packs too well, or too closely with other articles. If the sides were fluted, and air-holes punched in the flutings it would be better."

WIRE CLOTH.

Mr. B. further says: "I should like to call your attention to the *green* wire cloth used on some of the cages. The queen and bees in these cages were literally covered with a fine green dust, and it was not until several days after introduction that the queens were cleaned from it—in one case, not for two weeks; and in trying to get it off from the queen, the bees removed every particle of "fuzz" from her back and shoulders, leaving her as shiny as glass. Those with the black wire cloth were perfectly clean."

PROOF OF VALUE.

When I started these queens for Australia I had some misgivings about their being of any value to those who purchased them, fearing their long journey, confinement, and the necessary abuse to which they must be subjected, would injure them. But it would seem that these misgivings were groundless, in part at least, for Mr. Walker writes that the two sent him "showed no half work and half play, or half brood and half honey in one comb, for they proceeded to fill up the combs to their very corners, and top-bars with brood." Mr. Bradley says nothing as to the laying qualities of those received; but it would seem that he went right to breeding from them, and gives the point which I consider of *greater value* than the prolificness of the individual queens, which have been subjected to such great abuse as they must be in going so far, and the *one point* above all others which is to the interest of all apiarists. He says, in speaking, of the young queens: "Their queen-daughters are very even layers, and very prolific. They fill the brood-frames from side to side and from top to bottom, and their worker progeny leave nothing to be desired in the way of work. On the whole we are more than satisfied with the result of our enterprise." This proves the position I have taken in the past, that, through a direct cross, comes the greatest energy and activity in our pets.

Borodino, N. Y., Mar. 5. G. M. Doolittle.

[We are glad that our friend Mr. Doolittle has taken hold of this matter in the careful, painstaking way so characteristic of his methods of work. There is no doubt, in point of theory and fact, that his flat cages are better than the block cages we used with such good results last season. The latter has done marvelously well; but where there was an opportunity for comparison it was evident that the flat cage was the better. We have examined all the cages carefully; and while our correspondent seems to favor style No. 1, we rather incline toward No. 2, as shown in the engraving, because it is stronger and of better proportion. This latter has the very desirable feature of having candy at *both* ends; and, besides, it seems to us that it can be made equal in point of ventilation to the still flatter cage No. 1. This, as nearly as we can remember, before we submitted it to our engravers for reproduction, seemed to be frail, and not one we would dare to trust to the vicissitudes of a long journey. The reason we decided on the block form in the first place was, because the postal regulations stipulated that kind of cage; but if the "powers that be" will permit these flat cages to pass through the mails (and they did in Mr. Doolittle's case) they (No. 1 or 2) will be the ones to adopt.]

COBS AND KERNELS.

INTERESTING FACTS AND OBSERVATIONS BY F. GREINER.

1. From the standpoint of the comb-honey producer I have never found it profitable to practice dequeening for the purpose of increasing the honey crop, except in connection with the renewal of the queen; and in that case I should rather consider it a remedy for curing or preventing the swarming fever. It requires very good judgment in anticipating the honey season, in having the young queens commence laying just at the right time, etc. One may easily fail.

2. It seems to be the desire of all colonies of bees in normal condition to breed many drones at a certain time of the year. Gratify this desire, and a state of contentedness and general harmony is established, without which no colony may be expected to do its utmost. Now, while some of our noted bee-keepers, Baron von Berlepsch at the head, have theorized that drone comb is out of its place in the brood-chamber, many of us have noticed colonies almost overrunning with drones, outstripping others that were practically without them; and I believe it best to allow each colony a liberal amount of drone comb; perhaps half an L. frame full may not be too much.

3. I believe the majority of our comb-honey producers, and also the manufacturers of comb foundation, are in favor of using light foundation (full sheets) in sections, and it may be poor policy to oppose its use; but should we not in the first place consider the wishes of the consumer? To judge others by myself, I should say they do not want it. I do not like to chew the disagreeable backbone, for even the lightest brand is not entirely worked out. May we not injure the honey-trade by the use of foundation in sections except for starters?

4. It is not so much the good quality of the section as it is the quality of the honey, the color, finish, texture, and flavor of the honey the section is filled with, that pleases the consumer most.

5. They seem to be periodical, these discussions of "Italians versus Blacks." From time to time they have made an appearance, and also again of late. I have always been greatly in favor of the black bees, particularly because their product is so much better as to looks, and sometimes I have been quite uncharitable toward those booming the yellow race. Well, now, after an experience of over 15 years with both races I am still undecided in the matter. I think that, if the management requires to hunt out queens often, then the pure Italian bee takes the preference.

6. To find a black queen in a powerful colony is not often an easy task. Many times every comb has to come out of the hive; the remaining bees must be examined critically, perhaps dumped out into a sheet; and I am not sure but that sifting the entire drove through a sieve of queen-excluding metal may yet prove the quickest way to attain the desired result.

7. My colonies of pure Italian bloods do more propolizing than either hybrids, blacks, or Carniolans. They store a greater amount of pollen, also more honey in the brood-chamber.

8. On page 155 Mr. Elwood expresses almost exactly my ideas of grading comb honey. Undoubtedly he is right in saying, "Unsealed, partly filled sections, and such containing bee-bread,* should be kept at home." Some years we have a good many sections which, although all built out and sealed, are yet light in weight; the combs are not full thickness. No objection could be raised to shipping such; but they would better be crated by themselves, as it is desirable to have all sections contained in a crate as near alike in weight as is possible.

9. The Porter escape is perhaps ahead for use *on the hives;* but on a whole stack of supers the four-point Dibbern escape gives better satisfaction. The light falling in through the center hole attracts the bees, and causes them to come out much quicker. Robbers will seldom obstruct the passage at the points, but will hover on the screen just above the center hole. I used to think that the most natural escape, the one which would facilitate the exit of the bees most, was the old Reese cone-escape. In this, however, I was mistaken; for, after a while, the returning and the robber bees, also young bees from within, begin to cluster at the apex of the cone, and hinder the escape of the bees.

10. Removing the full super from hives in out-apiaries—many times, I practice the old method of driving bees down with smoke, lifting up the super quickly, brushing off what bees are on the bottom, then stacking up from 10 to 12 supers on top of an escape-board, also placing one on the top of the stack, and await

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*In all my experience I have come across but one person fond of bee-bread, who actually preferred honey containing a liberal amount of it.

results. For this purpose no escape seems to work any better than a combination of the four-point Dibbern and the later Reese (such as I mail you to-day). To still more facilitate the work, I provide a case near the center part of the stack with a ⅜ hole at each side, placing a wire-cloth cone over each. It will not be long before every bee will have left the supers.

11. Many of us have been successful in wintering in chaff hives by giving upward ventilation through a thick chaff cushion; and it seems to me we ought to go very slow in changing our method. The objection of cushions getting wet and cold does not hold true so far as I have observed. Only the upper part of the cushion gathers moisture and becomes wet; all the rest remains dry and warm. By raising or removing the roof on a fair day, this condensed moisture can easily be made to disappear. When upward ventilation is given I think it is best to close up the entrance to within two inches; when not, giving full entrance is perhaps the better. A board stood up leaning against the hive in front of entrance, to break the force of the wind, also to shield against the rays of the sun, is of advantage.

12. I wish to speak of a bee-cellar with a *cemented floor*, which a friend of mine in this vicinity uses with good success. Two weeks ago the 150 colonies therein were in fine shape, apparently, only a few dead bees being on the floor. A few years ago this same cellar had 10 or 12 inches of water in it nearly all winter; still the bees came out all right in the spring.

13. If a colony of bees arrives at its maximum strength any length of time before the honey-flow commences, it will not do nearly as well as some other colony just getting there as the season begins. This is particularly the case with such as have older queens.

14. Machines for folding sections will not be the desideratum with me until, by a happy combination with the foundation-fastener, the starters can be also fastened in by the same operation. If I can not save time, nor do the work better by using a machine, why use it?

15. Dr. Miller says, in Feb. 1st GLEANINGS: "But is it true, that bees do not become field-workers till 16 days old? I have seen bees 5 days old carrying pollen." Then Dr. M. does not accept the sixteen-day theory, does he? I am pretty sure that, under normal conditions, bees do not become field-workers until 16 days old. What they may do under other conditions I have not observed. The A B C tells us, "Bees become field-workers when two weeks old, sometimes when but one." Prof. Cook is undecided; he gives the age as two weeks, but thinks that, under abnormal conditions, they *may* go into the fields when one week old. James Heddon teaches, "Bees become active workers in gathering honey when from 4 to 8 days old." According to G. M. D., this is not the case until they are 16 days old. Why so much indecision and differences in opinion, when the facts may easily be ascertained? A few experiments thoroughly carried on would tell the story.

Vogel conducted an experiment of this kind some 15 years ago. He arrived at the same conclusion G. M. D. did. The experiment of Vogel is so far all the more interesting, as he formed his experimental colony by the use of brood-combs containing only sealed and hatching brood, so no old bees could possibly be in the hive. By the experiment, Vogel learned in the first place that bees need no education or training to perform the functions which are performed inside of a hive of bees. The faculty is born in them for nursing the brood, building comb, etc. Further, he observed that no bee left the hive for any purpose until the sixth day from the time of the first bee emerging from the cell. On that day, in the afternoon, a few came out for a playspell; after this the hive became perfectly quiet. The next day in the afternoon, more bees came out for a playspell, and so on, more and more every consecutive day, but always becoming quiet after the playspell; not a bee went foraging until the sixteenth day in the afternoon, after the usual playspell, then just a few bees were seen to return with their pollen-baskets loaded. From this time on, the colony became more and more active. Some time during the course of the experiment the colony was deprived of its combs and provision; still, not one bee would go out in search of food, although the day was fair, and nature furnished both pollen and honey. The bees were nearly exhausted when their provisioned combs were returned to them, and they were thus saved from starvation.

Since Vogel is one of the best authorities of the present day, I have no reason to doubt his statements; still, there may be others who have not the faith in him, considering what other authorities claim, and I would suggest that a number of our ablest men conduct such experiments as they may think best. I wish I could induce Dr. Miller, Mr. Green, the manager of the National Experiment Bee-station, and some others to take this matter in hand. Of course, that would not hinder some of us dabblers from experimenting along this line. It would indeed be funny if we did not settle this thing definitely by the time the International meets next fall. F. GREINER.

Naples, N. Y., March 12.

OBJECTIONS TO THE USE OF HONEY.

A NEWSPAPER CLIPPING FROM DR. J. H. KELLOGG, IN REGARD TO THE USE OF HONEY AS FOOD; AN ILLUSTRATION OF THE WAY IN WHICH GREAT MEN SOMETIMES MISLEAD.

The following, from Dr. Kellogg, is clipped from a newspaper, and sent us by one of our correspondents:

> Honey, in its best estate, is not a pure sweet, and consequently is open to greater objections than free sugar. The bees are not very nice in their habits, and gather their store in all sorts of places, sometimes hovering over that which is very loathsome and unclean. In gathering the nectar from flowers, the bee rubs off more or less of the pollen and carries it home with him and deposits it with the honey. If the pollen happens to be poisonous, the honey is poisoned. At Trebizond, Turkey, poisonous flowers abound so that the honey at that point is always poisonous. Further, the bee always puts in a certain quantity of poison from the poison-bag, formic acid, to preserve the honey. If the bees are very much disturbed while at their work, they inject an unusual amount of this formic acid into their product, and so the honey becomes "rank." A person who eats "rank" honey will be taken sick, and likely break out with a rash similar to nettlerash, formic acid being the poison in both instances. These facts have all been determined by scientific investigations.

We have great respect for Dr. Kellogg; but, like other great men, he has made *some* bad blunders. And, by the way, "big doctors," it seems to me, are too apt to make positive assertions in regard to things a little outside of their field, that are only mere conjecture. His expression, "Bees are not very nice in their habits," may be true in a narrow sense; but the statement is mostly misleading as it stands, as any one conversant with honey-bees knows. Again, he says, "If the pollen happens to be poisonous, the honey is poisoned." This reminds us of the fearful blunder made by the health commissioners of New York city last season in condemning grapes. They *did* see a little poison on the *stems* of the grapes, very likely; but in order to do any harm, a man would need to eat *a ton of grapes* at a meal, stems and all; and even then it is doubtful whether the quantity of poison he received would prove fatal. The honey at Trebizond, Turkey, is "always poisonous," is it? Perhaps we can find out something more about that. If there is anybody who reads Gleanings who has ever been near that locality, I would kindly ask him to give the address of some proper person, and have the matter investigated. Such a newspaper statement would be damaging to the "real-estate prospects" of that locality. We would respectfully call the attention of the Sublime Porte of Turkey to the above slanderous statements in regard to his dominion. Another thing, does the honey-bee *always* put formic acid in the honey? Prof. Cook, will you please stand up and tell us about these things that come within your domain? Some writer in some of the journals, if I am correct, once suggested that the operation of extracting honey stirs the bees up to such an extent that they inject bee-sting poison into the honey, and this is why extracted honey is more likely to make people sick than comb honey. The writer was probably working for comb honey, and felt anxious that the great public should give comb honey the preference—i. e., pay a bigger price for it. Then, again, "The person who eats rank honey will be taken sick." This is another of the positive assertions; and yet we have readers of Gleanings who eat raw honey about as friend Terry and I eat strawberries, and it does not make them sick "worth a cent." The rest of the sentence would indicate that, whenever any of you break out with a rash, all you have to do is to think back when you last ate some honey. Dr. Kellogg, you are a whole team when you go for tobacco, cigarettes, Dr. Wilford Hall, etc., but when you are writing about honey, please recognize that *it* is *not* a terrible curse to humanity that needs stamping out by such vigorous statements.] A. I. R.

RAMBLE NO. 56.

IN SAN FRANCISCO.

After a few hours' ride from Napa City we arrive at Vallejo (Val*leo*) on the San Pablo Bay. A little to the east is Benicia, where a United States arsenal and soldiers' barracks are located, and where, also, will be found one of those immense ferryboats that will take a whole train of cars. Just across the bay we come to Port Costa, where we find immense warehouses stored with wheat, ready for shipment. San Pablo Bay is but a continuation of the bay of San Francisco, and we now follow the shores of the bays for 20 miles, and soon arrive in the city of Oakland. Although Oakland is noted as being called the Brooklyn of San Francisco, it is a thoroughgoing business place, and has the motley and lively makeup seen in all western towns. It was here I saw, the first time after many months, faces that were familiar for many years in my native town. A young doctor had located here only a few months previously, and, among other household goods, had brought along his father-in-law and mother-in-law, and we all had a sort of jubilee. After answering innumerable questions about home affairs we quieted down for the night. The next day I was off for San Francisco.

It is about five miles across the bay, and the railroad piers run out some distance into the bay. The immense ferryboats are loaded every morning and evening with from one to two thousand people going from their homes in one to their business in the other, Oakland being a more desirable place of residence than San Francisco.

At the ferryway I met an old-time friend who had followed the high seas for many years in the United States navy, and had finally got settled down to punching ferry-tickets. I presented my ticket, but held on to prevent the punching. He looked at me with an angry frown, and was about to utter hot words of rebuke. Said I, "George, do you know me?" and, though 26 years had elapsed since we had met, he knew me, and so arranged his ticket business that he spent a day showing me San Francisco.

The narrow point of land upon which San Francisco is located, as shown upon the map, is fully ten miles in width; and if Rome was built upon seven hills, this city is built upon seven times seven. The surface is very uneven, and in some portions back of the city it rises to the dignity of mountains. The chief means of locomotion is by cable railroad, and it seems that any other railroad would be a failure here on account of the very steep gradients to overcome.

San Francisco has probably the most heterogenous population of any city on this continent. It has its Italian, Portuguese, Chinese, and other quarters of distinctive nationalities. The most noticeable is the Chinese, for they bring and retain all of their national characteristics and dress. The senior editor of Gleanings remarked about seeing his first Chinese woman in Portland, and noticed her head, but did not seem to notice her feet. The Chinese women that come to this country are not of the class that have those very small feet, but they wear the regular Chinese shoe, and it is a mystery how they stand on them. Nearly all Chinese wear the wooden-soled shoe; but the woman's shoe differs in being more rounding on the bottom. As they waddle along, the sole of the shoe looks like a rocker, and you expect to see the wearer pitch one way or the other. I suppose the shoe was invented by Confucius, and the people have had a long time in which to learn its peculiarities.

The prettiest sight, and one that always draws attention, is the little Chinaman of four or five summers. He is usually decked out in bright green and yellow, or other hues, with decorated shoes, and is evidently proud of his fantastic appearance.

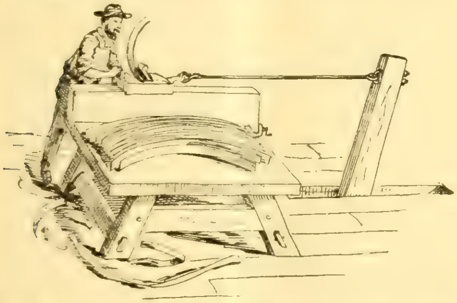
The fogs roll up over San Francisco nearly every morning, but they do not get across the bay to Oakland. The nights are cool, and a great portion of the year it is desirable to live on the sunny side of the house. There are, consequently, but few shade-trees on the streets of this city. The visitor will scarcely fail to notice the healthy and robust appearance of the women of this city, and even their faces of good rosy color and beauty.

A point of never-failing interest is to visit the Cliff House and the Seal Rocks. We run out by rail past the historical Golden Gate, and the grand Pacific Ocean is before us. We had viewed the old Atlantic from many points, and it was with a feeling of satisfaction that we were permitted to look out from this far side of the continent upon the Pacific, and see the breakers roll in upon the sandy beach.

The Seal Rocks are so named from the number of seals, or sea-lions, that congregate there. They bellow and quarrel as the waves dash over them, and one very large one, named Gen. Butler, seems to rule the roost. Sutro Heights and Sutro Park are open to the public, and it is truly a beautiful place. The Golden Gate

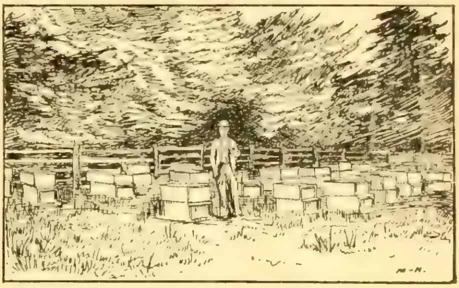
Park extends from the city down to the ocean, a distance of five miles. We walked back through the park; and, while the far end of it near the ocean is yet unimproved, the city end is a veritable paradise; and when it is all completed it will be the grandest park in the world. But space will not allow me to dwell further upon the many interesting features of this city. My friend the next morning went to the punching of tickets, and, with a letter of introduction, I sought Mr. Weston, the manufacturer of fruit boxes and baskets of all sorts and sizes. My object in looking up this business was to find, if possible, some wood on this coast that would make good sections. Spruce seemed to meet the requirements nearer than any other wood, and Mr. Weston's experience with woods of all kinds gave value to his advice. For the manufacture of baskets the material is shaved into splints from ⅜ to 2 inches in width, and of varying degrees of thickness. The machine for making these splints is very simple. The spruce plank to be shaved is clamped to a strong bench; a flat plane is operated by a strong lever that projects through the floor, to which motion is given from machinery below; a strong rope connects plane and lever, and, with a man to adjust the plane at every sweep of the lever, the plank is soon reduced to material for baskets.

Wishing to test a few shavings for sections, the plane was set to an eighth of an inch, and several strips were rapidly taken off, and the grain was not badly broken. I found, however, the following obstacles to the use of spruce: To plane easily or at all, the timber must be green or wet, just as it comes from the rafts that have been floated here from Oregon. When seasoned there is a hard bonelike film which is hard for a saw to cut unless frequent filings are resorted to. It is also more brittle than basswood when dry, and more liable to break at the corners. The price of selected timber is $30 to $35 per 1000, which puts it on the shelf as compared with basswood. Other woods have been recommended, such as cottonwood, which has only a small strip of white in a tree, and it is difficult to select it. Cedar and eucalyptus have also been recommended; but their strong odor is an objection. Sugar-pine would probably make a good section; but even that, when we select the best, is nearly the same price as spruce. Redwood is a fine wood, but the color, if not the price, is an objection. I gave up the pursuit, for I believe there is nothing on this coast or any other that can compete with basswood in all qualities for a one-piece section. Mr. Weston tried to use these splints for sections by bending and lapping one side; but they got out of shape, and looked simply ridiculous by the side of the straight and trim basswood.



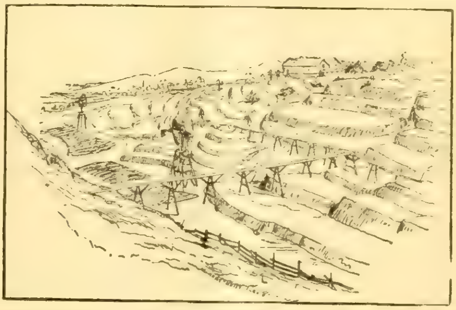
SAN FRANCISCO MACHINE FOR MAKING BASKET-SPLINTS.

Several parties have ordered machinery for this purpose, but it stands idle and is for sale. Bee-hives and shipping-crates are made by several parties here, and this can be done here as well as in the East; but still, thousands of hives come from east of the Rockies every season. The last gentleman I saw in relation to the supply business was Mr. Wm. Styan, of San Mateo, about 20 miles out from San Francisco. San Mateo is a lovely town where many wealthy San Franciscans reside in beautiful residences surrounded by shaded pleasure-grounds, and beautified with trees, shrubs, and many-hued flowers, nearly all new to the Eastern man. Mr. Styan is a sturdy Englishman, has been in the United States about nine years, and nearly all the time in California. He has an apiary of over 30 colonies, and is rearing golden Italian queens, and deals in supplies. Mr. Styan has much other business; and, his son having recently secured other lucrative business in the city, he was obliged to suspend the publication of the *California Bee-keeper* for the time being, but proposes to start it again in the near future. We traveled the shady walks of San Mateo a while, during which Mr. S. pointed out bees at work on the small white blossom of the eucalyptus-tree. I was informed by Mr. S. that this honey is much sought after on account of its medicinal qualities. The blossoms are very fragrant, and it is a healthful tree to have around. Mr. Styan's apiary has the eucalyptus for a background. In San Mateo are several educational institutions, and, on the whole, it seems to be a desirable place in which to reside.



A EUCALYPTUS APIARY.

Between San Mateo and San Francisco, gardening is extensively engaged in. The side hills are neatly terraced, and water drawn up by scores of windmills to irrigate and make productive all the long year round what otherwise would be a barren hillside.



TERRACING, AND IRRIGATING BY WINDMILLS

After my return to Frisco I felt a strong desire to test the merits of ocean travel; and upon the steamship Queen, bound for Southern California, will next be found the RAMBLER.

[Yes, friend R., I did notice particularly the wooden shoe worn by the Chinese women, and their peculiar walk; and Mrs. Root and I both admired the Chinese juveniles. They are by all odds the cutest and prettiest members of the Chinese family; and how in the world these Chinamen can stay here in our country without their liitle ones, to say nothing of their wives, is beyond my comprehension. I saw some little fellows carrying in wood, and doing other chores about the house, and they seemed to be as deft and handy, almost, as the grown-up ones. It seems we went over about the same ground, and we were especially interested in Sutro Park and Sutro Heights, and the seals. You call them "sea-lions." Well, it seemed to me that some of those big fellows were something more than large seals.—It seems to me your machine for making basket-splints is a rather primitive one. Can they not get better tools from some of our Eastern manufacturers? Your investigations in regard to material for making sections just about agree with our own here.—In regard to the *California Bee-keeper:* I do not know that it is our business to stir up discord; but it occurs to me that Mr. Styan and his son, when they found that they had too much else to do to keep the *Bee-keeper* going, should have refunded the money for which no equivalent had been rendered. I mention this because I heard considerable complaint along this line; and if the matter is not fixed up, people are going to be a little slow hereafter in subscribing for new bee-papers.] A. I. R.

THE PORTER BEE-ESCAPE.

A GOOD TESTIMONIAL FOR IT; BEES' WINGS NOT TORN BY IT.

In response to your request concerning the Porter spring bee-escape tearing bees' wings, I wish to say that bees' wings are not injured in the least in passing through the escape. Although I have used these escapes ever since their invention, and having no occasion to mistrust any injury to the bees in any way, upon reading your editorial I made further investigation. Having a few springs, such as are used in the Porter escape, I tried cutting or tearing bees' wings with one of these springs, and found it almost impossible to mutilate the wings, even when holding them between the thumb and finger of one hand, and using the spring as a knife-blade or punch. So tough and flexible are the wings of bees, that they slip aside in spite of any effort to hold them in position to tear them. I also caught a bee and brought it to a window, and compelled it to pass through an escape several times, watching it closely while doing so; and should you make an experiment of this nature, you would doubtless say, "*Nonsense!*" I think that no intelligent bee-keeper would expose his ignorance by intimating that bees' wings are injured by passing between the springs of the Porter escape. Much less would it be likely that an intelligent gathering of bee-keepers would pass a verdict of condemnation in matters of this kind without thorough investigation; so I think there must be some mistake in this matter. Furthermore, it does seem that, where so many prominent bee-keepers, such as Prof. A. J. Cook, J. F. McIntyre, Thomas Pierce, John S. Reese, J. H. Martin, and many we can not mention, have given such hearty commendations of this useful implement, the matter as mentioned in your editorial could not be very serious, or some one would have discovered it ere this.

If all the appliances of the apiary were as faultless as the Porter escape, bee-keepers would have but little to complain of in the matter of fixtures. S. A. Shuck.

Liverpool, Ill., Mar. 10.

[We have had enough now to prove that the rumor of wing-tearing was founded on mistake If any thing has been called out it is that the Porter is a good thing.]

THICK VS. THIN FOUNDATION FOR SECTION HONEY.

THE ONTARIO AGRICULTURAL AND EXPERIMENTAL UNION DECLARE IN FAVOR OF THE EXTRA THIN FOR SURPLUS.

The following printed report came through the mails; and as it records a valuable experiment we take pleasure in copying it:

The experiment conducted was, "Testing to what extent, if any, the bees thin out the septum, or base of comb foundation before storing the honey in the comb, and what effect various thicknesses of foundation have upon the thickness of base finally left by the bees." The object of this was to see if heavy grades of foundation would leave an undue amount of wax in the comb, making it unpleasant to the consumer, and injuring the sale of comb honey; or if it might be drawn out into cell walls by the bees. The foundation was supplied free of all charges to the ones agreeing to conduct the experiments. There were three grades sent out, being 6 feet to the pound, 10 feet to the pound, and 12 feet to the pound, known as medium brood, thin surplus, and extra thin surplus. The sections were marked accordingly before putting into the hive, and instructions given to place all over center of brood-chamber to give all an alike favorable position or otherwise for drawing out and building on the foundation. Owing to the very unfavorable honey season generally, some were unable to get the foundation drawn out at all. These we hope to secure next season. In testing for sections which had the thinnest base, the three samples were taken without looking at the number of feet per pound marked on wood, and by looking through base of section and taking a piece of each comb in mouth, the order of thickness was found, and in almost every instance the order was the same as when the foundation was placed in the sections. In no case was the least difficulty experienced in discovering that the foundation 6 feet to the pound was the heavier—the base and also the wall was heavy; and the feeling, when eaten with honey in the mouth, decidedly unpleasant. In No. 8 experiment a heavy honey-flow was secured artificially, by putting a feeder on top of the hive, holding about 15 pounds, and the bees built the comb out very quickly. In this lot, when the honey was extracted and the wax was cold, the cell wall built on by the bees was broken away, and underneath the foundation was found in almost if not exactly the same condition as when put in the sections. The general results tend to show that comb foundation in sections is not thinned by bees as is generally supposed. Twenty-four applied for material, out of which the following number reported, as follows:

BY WHOM CONDUCTED.	POSTOFFICE.	HONEY-FLOW.	ORDER OF THICKNESS.		
			6 ft.	10 ft.	12 ft.
1 Dr. Geo. Duncan*	Embro, Ont.	Light.	1	3	2
2 E L Goold & Co	Brantford	Medium.	1	2	3
3 Geo. E. Adams....	Brantford.	Medium.	1	2	3
4 Wm. Mobray	Sarnia.		1	2	3
5 Elg'r M Husband	Cairngorn.	Medium.	1	2	3
6 Miss H. F. Buller	Camp'lford.		1	2	3
7 Wm. German	Beachville.		1	2	2
8 R. F. Holtermann†	Brantford.	Heavy.	1	2	3
9 Geo. Barber......	Hartford.	Light.	1	2	3
10 S. Rightmeyer...	Wooler.		1	2	3
11 W. Haight....	Wellington.	Medium.	1	2	2
12 Jas. Shaw	Kemble.	Medium.	1	2	3

*A scarcely perceptible difference between 2 and 3.
†A very marked difference.

Apiarian Committee. { Edgar M. Husband.
W. Haight.
R. F. Holtermann.

[If we understand the report correctly, the result of the experiment seems to favor extra thin foundation; but a number of bee-keepers on this side, Dr. Miller, the Dadants, and some others whose names we do not now recall, have decided that the "extra thin" is no better, nor as good, as what is called "thin surplus." When the matter came up for discussion, we believe the objection to the extra thin was, that the bees would, on account of its extremely light weight, sometimes gnaw it.]

EMPTY COMBS AND OLD FOUNDATION IN SECTIONS.

SECTIONS OF OLD DRAWN COMBS VS. SECTIONS OF FRESH FOUNDATION, ETC.

As the bee-keeper goes to work to prepare his supers for the coming harvest he is often met by the problem what to do with the unfinished sections left over from the previous season. As to the value of such sections for using again, the widest difference of opinion prevails. Some consider them superior to freshly filled sections, and fill whole supers with them, while others consider them worse than worthless except for the purpose of attracting bees into the supers; and even for this purpose they do not want more than one or two in a super.

When the subject was first brought up for discussion, several years ago, I received many appreciative letters from those who had found, as I had, that it was more profitable to melt up sections filled with comb than to try to have them filled with honey. But there were some very practical honey-producers who opposed this view, and continued to oppose it in a way that was at first very perplexing to me. I had found that sections were never first class in appearance, and that, while the bees might begin work on them first, they would not be finished as soon as those started from fresh foundation. It has been generally conceded that such sections never look quite as nice; but the proposition that they are less valuable otherwise has always been opposed.

During the past two or three seasons, with their poor yields of honey, I think I have found the reasons for this difference of opinion. I have found, as others have, that, during a very light yield of honey, the two or three "bait sections" of empty comb in each super would sometimes be filled with honey, and finished, before sections containing foundation had been started at all. Of course, under such circumstances the use of sections containing drawn comb would give a larger yield of box honey, even though its quality might not be first class. But it is to be hoped that honey-flows of so light a character as this are not going to be frequent enough to make it necessary to take this point very much into our calculations.

When we closely question many of those who insist on the great value of drawn combs in sections we find that they use only starters of foundation instead of sheets filling the section full. A comb reaching from top to bottom of the section offers much greater inducements to the bees than a narrow starter at the top, and good combs may be more profitable than such starters.

But the principal reason why many do not see this question in its proper light is, that they do not compare the sections of drawn comb with those filled with *fresh* foundation. I have known for years that freshly made foundation is better than that which has been exposed to the air for some time, but I never saw the difference so strikingly shown as in an experiment last summer. On account of lack of help, many supers were just as they had been left the preceding summer, the sections containing full sheets of foundation untouched by the bees. Wishing to try a new make of sections, two or three rows of the old sections were removed from each of a number of supers, and replaced with the new ones containing fresh foundation. Only a moderate amount of honey was being gathered, and but few colonies were making any progress in the supers, so that I was surprised, a couple of weeks later, to find most of those new sections built out and finished, while in some cases the old foundation, right alongside in the same supers, had not been touched.

If, in testing this matter, full sheets of fresh foundation were always compared with drawn combs, I think the unprofitableness of the latter would seldom be questioned. But there is a serious difficulty in the way here. It is not always possible for the bee-keeper, especially if he counts his colonies by the hundred, to use only fresh foundation. He must prepare many of his supers in advance of the honey-harvest, and is always liable to have some of them left over unused. If he does not do this he must be able to count on an abundance of reliable help during the honey season, or he is liable to serious loss. On the contrary, I am convinced that he may lose heavily by using old hard foundation. Between the two horns of the dilemma I hardly know which to choose. What I have decided on for the present is this: All drawn-out combs, except enough of the best to put two or three in each super, used at the beginning of the season, shall be cut out and melted; all sheets of foundation that have become bleached or propolized shall be remelted, and at least one-third of the sections in each super shall be filled with fresh foundation. By "fresh foundation" I mean that which has been exposed to the air as little as possible, and has not been put into the sections more than two or three weeks in advance of the time it is needed on the hives. Possibly it might not deteriorate very much by being in the sections a couple of months; but that which has been kept over from one season to another, exposed to the air, is certainly very far inferior to fresh foundation. This is especially the case when it has been on the hives some time and has been varnished over with propolis by the bees.

I consider that foundation best which has come most recently from the dipping-tank and rolling-mill; but that which has been papered and tightly boxed, so that it is not exposed to the air, will keep a long time with but little injury.

J. A. GREEN.

Dayton, Ill., March 4.

PREVENTING INCREASE WHEN THE FIRST SWARM ISSUES.

J. F. M'INTYRE EXPLAINS MORE FULLY THE SECRET OF THE DADANT NON-SWARMING PLAN.

In Chas. Dadant & Son's article on preventing increase, page 541, 1891, they revealed a secret not found in the books; at least, I have just looked through ten bee-books, Dadant's included, and did not find it in any of them. They all agree that, as a rule, the first swarm issues when the first queen-cells are sealed, unless prevented by foul weather. Now, every bee-keeper should know that there are several other conditions which will make a colony postpone swarming until the second crisis, that is, when the first cells are ready to hatch, and one of the most powerful is a large hive containing plenty of empty combs. If I understand Dadant's system they put a super full of empty combs on their extra large brood-chambers before the bees commence to build queen-cells, or get the swarming fever; this prevents most of the colonies from getting the fever, and the few that start queen-cells do not swarm until the first cells are ready to hatch. In that article they say, "If we return the swarm 48 hours after swarming, the queen-cells have been destroyed by the young queen, and the bees get rid of her or the old one when the swarm is returned." This shows that they mean the first swarm, and that their bees do not, as a rule, swarm until the first young queens are ready to hatch. They probably would not have any swarms if it were not for this crisis; the bees seem reluctant to kill the young queens, for, as a rule, the old queen is feeble, or they would not have started the cells, so they yield to the impulse and swarm. If the weather happens to be unfavorable at this time, one of the young queens will often hatch, and kill the old queen, when the swarm will issue with a virgin. I had 109 first swarms this season, and out of that number 49 killed the old queen and swarmed with a virgin; 40 swarmed with the old queen when the first cells were ready to hatch, and 20 according to rule, near the time that the young queens are sealed over.

I am afraid that bee-keepers having small hives will be seriously disappointed in trying Mr. Dadant's plan of preventing increase, because, as a rule, bees in small hives do swarm on the sealing of the first queen-cells. I feel very sure that the success of the plan depends on having a large hive filled with empty combs, or, rather, the super filled with empty combs. You may put it down in the books, that a colony having a large amount of empty comb in their hive will not, as a rule, swarm until the first queen-cells are ready to hatch; and that such colonies, when they do swarm, are very easily discouraged from swarming again. The exigency of the case forces them out against their better judgment; and when this exigency is removed by one queen hatching and killing the others, the bees are contented to remain.

Fillmore, Cal., Feb. 24. J. F. McINTYRE.

[Friend M., I entirely agree with you in the position you take; and since you mention it, I feel pretty sure that a large hive like the one used by the Dadants would have very much to do in keeping down the swarming fever; but I am afraid, my good friend, when you looked over those ten bee-books you did not look very carefully—that is, if the secret you speak of is the matter of giving a larger amount of room and empty combs. In the A B C, under the head of "Prevention of Swarming by the Use of the Extractor," you will find particular emphasis placed on this point. See also Dadant's book, paragraphs 461 and 459. I am glad, however, that you have called attention to it, for perhaps it has nowhere been stated with sufficient clearness. Putting on a whole super filled with empty combs, just before the bees get the swarming fever, will surely do very much to hinder swarming. For many years I have watched and experimented, with a view of getting at the real cause of swarming; and when they really get the fever, it is oftentimes a pretty hard matter to stop them. I remember of once seeing some motions among the bees in a hive I had just opened, that seemed to indicate they were getting ready to swarm. I hastily lifted the combs, and stood them up against the grapevine trellises, so as to scatter them several feet apart. If I am correct, I had got them so placed that no two combs were together, and yet these bees started the swarming-note, and commenced rising from one comb and then another; and finally all that could fly left their combs and united in the air. So I concluded that, when bees had once made their arrangements, and got the real swarming fever, it was not an easy matter to hold them back.]

A. I. R.

ECLIPSE FOUNDATION-ROLLER.

HOW J. M. HAMBAUGH FASTENS HIS FOUNDATION TO THE TOP-BAR, AND IMBEDS THE WIRE.

Well, well! It does really seem strange to me that so simple a little device as the "Eclipse foundation-roller" should have remained so long in obscurity, and its merits so little known in the bee-world. It is certainly very simple, and yet it is perfection in the direction for which it was designed. Necessity is said to be the mother of invention, and it was after being thoroughly disgusted with all the methods known to us for putting foundation securely and rapidly in frames that led to the discovery of the roller; and now I am bound, in justice to a former friend and partner, by the name of Stone, to give him credit for the first invention of this practical little device. The original is still in my possession, a picture of which I herewith submit.

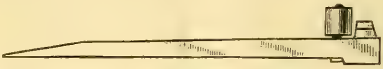


FIG. 1.—STONE'S ORIGINAL ROLLER FASTENER.

Mr. Stone left the State and embarked in other pursuits shortly after this; and while the roller of our present device is practically the same as that of the original, I have materially changed the shape of the handle and the mode of adjusting the roller to the proper depth on the brood-frame. We found the roller a grand improvement, and with a little practice we could put the foundation starters in very rapidly.

It was about this time in our experience that we became somewhat familiar with the methods of the Dadants; and having adverse experience with the use of starters in brood-frames we began to pave our way for the use of full sheets of foundation in brood-frames; and this, of course, called for wired frames. We accepted them as authority upon the subject of wiring, and commenced wiring in accordance with their method, and as illustrated in GLEANINGS for Jan. 15. The roller, as illustrated on the same page, 50, I presume was devised for beveled-edged top-bars, which must be differently constructed from the ones we use in our work. We cut all our top-bars ⅞ inch square, as will be seen by our illustration.

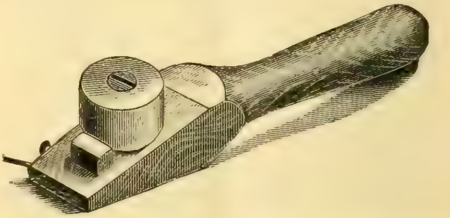


FIG. 2.—HAMBAUGH'S IMBEDDER AND ROLLER FASTENER.

We soon discovered that the roller of itself was of but little value to us in putting in full sheets of foundation without some device to imbed the wire into the septum of the foundation. Here, again, necessity became the mother of invention; and while friend Dadant has refused to recognize our device as of any practical utility, I want to brand him as a Frenchman. I have never used any thing else, neither have I had cause to wish for any thing better in my entire experience in bee-keeping, and I have thousands of combs in use to-day in which the wire was imbedded with our device, and I defy him to find a flaw in their construction. It is simply a small one-inch wire nail set in a handle at an angle, as in cut No. 3. The head is filed off, and a groove set in the point running lengthwise with the handle. It is operated by setting the groove in the pointed instrument over the wire furthest from the operator, as in cut No. 4, and, with a slight pressure, pull toward you, and thus press the wire into the foundation the depth required. Our friend Mr. Dadant, I believe, claims that it tears the cells of the foundation too much. I certainly think he has not given it a practical test. I know that, while the grooved wire may make a slightly wider track than the spur-wheel or Carlin tool, it matters but little to the bees, as it is soon drawn over, and the wire is buried as perfectly and securely with the work of the wire-imbedder as that of either of the more expensive tools. Later years we have attached the wire-imbedder to the corner of the foundation-roller (see cut No. 2), which is an improvement over the old method, inasmuch as it saves so much extra handling of tools while doing the work of putting in foundation, etc. The only advantage that we can see in the spur wheel is, that the wire may adhere a little firmer to the foundation while the frames are being handled; but we have had no trouble from that source with our method, except when we have transported combs in wagons to out-apiaries; and where this is required we now take our tools and foundation along and put the foundation in after arriving at the yard. As regards our mode of wiring frames, I believe it to be the most economical; and where care is taken to wire the frames properly, and the wire is drawn sufficiently tense to sing, there can be no better method adopted.

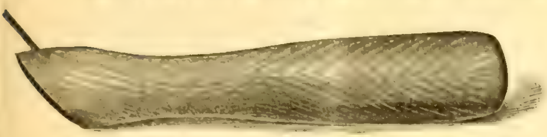


FIG. 3.—HAMBAUGH'S WIRE-IMBEDDER.

HOW TO MAKE THE PLATFORM.

Our method of using the roller and wire-imbedder is as follows: Should you be using the standard Langstroth frame, dress up an inch pine board, 22 in. long by 12 in. wide. Nail cross-pieces 12 in. long by 2 inches wide and 1 inch thick across each end, as seen in engraving No. 5. This is for the purpose of preventing the board from curling. Now dress down a piece of sheeting, the dimensions of half the thickness of the frame. Should your frames be $\frac{7}{8}$ in. thick this piece should be $\frac{7}{16}$ of an inch, and cut so that, when your brood-frame is laid upon the platform, the piece should fit inside of the frame, but not too tight. Give $\frac{1}{8}$ of an inch play all around. Now place your frame in the center of the platform, and put the $\frac{7}{16}$ piece inside of the frame, and nail it to the platform with inch wire nails, or 3 penny fine.

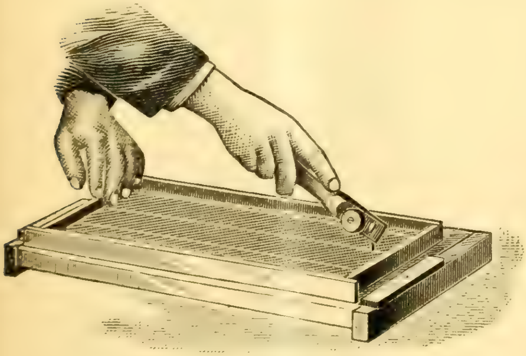


FIG. 4.—IMBEDDING THE WIRES.

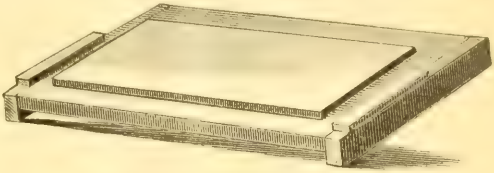


FIG. 5.—IMBEDDING-BOARD.

Now raise the frame from the bottom side, leaving the top-bar down, as in cut No. 6. Now tack a strip at each end, as can also be seen in the cut, to hold the frame from sliding, and you are ready for business. See cut No. 5.

HOW TO PUT THE FOUNDATION IN THE FRAMES.

Place a brood-frame on the platform, top-bar down. See cut No. 6. Now place your sheet of foundation on the platform, and slide the edge a little past the center of the lower side of the top-bar. With your thumb, press the wax into the wood at the center and ends; now bring light strokes back and forth, increasing the pressure as the wax adheres to the wood, until you know it to be sufficiently stayed. Now bring your frame down over the close-fitting $\frac{7}{16}$-inch raise, as in cut No. 4, and place the groove of the wire-imbedder on the wire at the opposite end of the frame (see cut), and, with proper pressure, pull to you, and you can soon give the wire proper depth in the foundation. Of course, practice makes perfect; but, my word for it, you can soon do your work neatly and rapidly; in fact, it is real fun, when you once get up to the business. The roller-mill needs dipping in water occasionally.

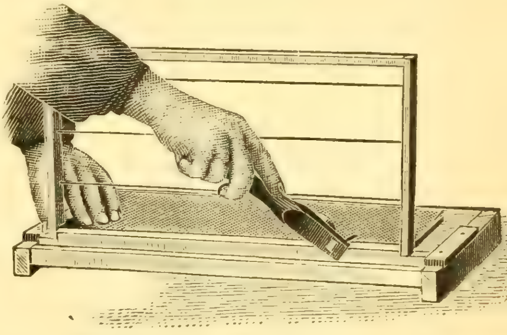


FIG. 6.—IMBEDDING FOUNDATION TO TOP-BAR.

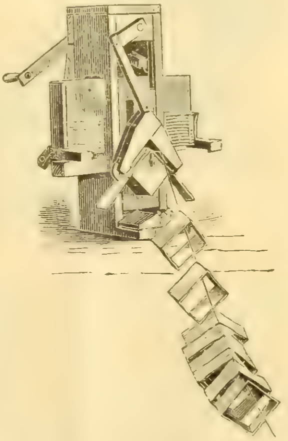
Spring, Ill. J. M. Hambaugh.

[While we may be under lasting obligation to your partner, Mr. Stone, we are under equal obligation to you for improving and making public so good and useful a device. Yours, as you say, is adapted for fastening foundation to the top-bars, the under side of which is flat, while ours is made for the molded comb-guide frames. And now about that wire-imbedder. At first we were inclined to agree with our mutual friend the Frenchman; however, before passing an opinion we decided to make such a tool and try it. Upon trying it we were greatly disappointed—not because it *didn't* work, but because it worked so well. It will imbed the wires very rapidly; and one pleasant feature of it is, that the grooved nail does not run off from the wire as some of the spur-wheels do occasionally. It has, however, one objection; and, as your friend Mr. Dadant states, it tears the cells of the foundation a little too much. But all of this, we presume, will be readily fixed by the bees when honey is coming in at a good rate. But sometimes the bees are disposed to gnaw around the wires, and the grooving or creasing of the nail might make them more disposed to gnaw. We therefore believe that the spur-wheel, such as is recommended by the Dadants, will generally be preferable because the wires are imbedded so nicely that it is almost impossible to detect the track of the wheel; and while your implement has the element of cheapness and simplicity to their fullest extent, the spur-wheels cost but little more, and, we believe, would give more satisfactory results.]

PHILO'S AUTOMATIC SECTION FORMER AND GLUER COMBINED.

A NEW MACHINE BY E. W. PHILO.

For quite a number of years past, perhaps ten or more, I have felt the need of a machine for doing more rapid work in putting together and gluing sections, during which time I have made several devices for accomplishing this work, but have never been fully satisfied with any of them until I had completed and thoroughly tested the one we place before you in the accompanying cut.



FOLDING AND GLUING SECTIONS BY THE WHOLESALE.

Although I have made two other machines in the past year that would do the same work, they were much too expensive to come into general use with the average bee-keeper. My aim for the past year has been for a machine that would do the whole work without any hand work, except filling the machine up with section strips and turning the crank. Every man, woman, and child knows how to turn a crank, and that is all that is required to operate the machine; and when that is done, out comes the section, all glued, folded, and pressed together — one every two seconds, or thirty every minute, by turning the crank moderately. To give you an idea of the amount of power required, my boy Ernest R., four years old, can operate the machine nicely. When the crank is raised to the highest point, the slanting board at the back of the machine is pushed in, and there are two little horizontal sticks fastened to the end of the board that pushes the bottom one of the section strips out over the block to be folded. The folding block then comes down folding the first joint, as you will see in the cut. The upper part of the little claws comes down on top of the section, causing the lower ends to turn in, bringing the ends of the sections together. The whole block and all, which is held up by a spring, goes down until the section is forced together in the V groove at the bottom. The two little blocks in the V groove are to make the ends of the sections come right, so they will go together easily; and while the section is being pressed together the gluer comes up out of the glue and puts some glue right in the V groove, and on the end of the section where it is dovetailed. E. W. Philo.

Half Moon, N. Y., Feb. 29.

[We have not seen the machine yet, and consequently are unable to judge personally of its workings. Mr. Philo is quite a genius in "making things," and we have no doubt it will do all he says it will. We should like to have reports from those who have tried it.]

"STRAWS" FROM CALIFORNIA.

COMMENTS ON STRAWS AND OTHER THINGS IN GLEANINGS.

Say, doctor, don't you think the big New York bee-men alluded to in Stray Straws of Feb. 1 are very practical, sensible fellows in not reporting their crops? The fact that they are the *big* bee-men of New York strongly tends to prove they are likely to have good reasons for so acting. Apply your suggestion as to giving legal control of their territory to other businesses, and see where it leads. Can you give any good reasons applicable in case of the bee-men which may not be just as equitably used by others who may wish to keep away competition?

Conflicting advice.—Another straw in same bundle says, "A. I. Root better come home and see to those boys," and then one of "those boys" is advised in the next lot of Straws to "keep A. I. down in Florida and Cuba till settled warm weather." Second thoughts are often best, doctor.

So the Hon. R. L. Taylor has no regular medical education. Forewarned is forearmed; but if the health of the weather is not what it should be it will probably not wish to be tinkered up by a miller, so will save the dollar.

And now you are "beginning to get mad." Don't do it, doctor, but try a quart of that drink mentioned on page 8, which J. A. Green does not seem to understand. Let J. A. make it, then he won't ask what the yeast is for. It's splendid for acting on the brain.

T. V. Jessup deserves sympathy in his efforts to obtain subscribers to Gleanings. Whoever Uncle A. I. may be, he is awfully behind times if he does not subscribe. Let us hope this may reach his eye; and next time he is asked to subscribe, let him hand over his dollar like a man.

Mr. Rambler, the picture of your meeting with the socialists in Chicago is highly interesting. How did you manage to get into Riverside? They are very particular about preventing the entrance of insect pests there, and have officers appointed to destroy all such. You'd better see them. And, Mr. R., what lazy men they are in Indiana to let the women do the hard work of pitching the hay on the wagon, while the men ride and gently arrange it!

Miss Wilson deserves thanks for her explicit instructions for making candy. When she starts in to explain a matter, she manages to convey a clear idea of what she has in her own mind. Many folks can not do so (that includes me).

What a blessing that that spring Mr. Root depended on to get his toes clean was able to maintain its reputation for detergent qualities!

But there is a limit, even to the powers of our California springs, so don't try them too far, Mr. Root, *please*.

Say, Mr. Editor, if I keep on kicking around in the apiary in this manner, disturbing the hives, I'll be getting pretty badly stung, and serve me right—durned fool.

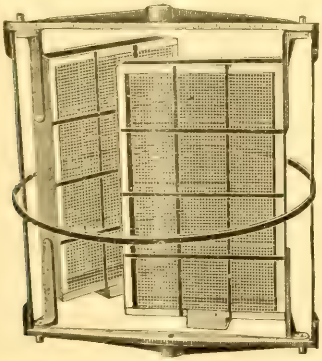
These sundries belong to what Mr. Doolittle terms "the fun" part our "profession," and I'm going to see what becomes of them before committing any more to the tender care of an editor. I don't take much stock in editors: they don't treat me well, generally; but as you, Mr. Editor, are young in the business (having been at it only five years, and not a few weeks only, as Mr. Hilton seemed to imagine), you have probably not become callous and hard-hearted, and so I may perhaps obtain more gentle treatment at your hands; but if you kill me, do it quickly. Now I'll stop. But what a lot of paper it takes when one is allowed to use only one side! but it's your loss. I could have written twice as much if I used both sides.

[No name was signed to the above; and, as a rule, we reject all communications without a signature; but we shall have to break our rule this time, because—well, because the subject-matter is quite "available." Come again, Mr. What's yer Name, but only let us know who you are.]

THAT COWAN EXTRACTOR.

HOW TO REVERSE THE BASKETS WHILE IN MOTION WITHOUT REVERSING THE CRANK.

Just why I should be very much interested in extractors I hardly know, seeing I use one so little; but any thing new in that line always excites my interest; and when Ernest told me about the Cowan extractor on my last visit there, it was not long before I was amusing myself trying its capabilities. And then I made what Ernest is pleased to call my "discovery," that the comb-baskets could be reversed without entirely stopping the motion.



THE INSIDE OF THE COWAN EXTRACTOR.

The trick is a very simple one. While the right hand is in use turning the crank, with the left give a push against one of the baskets to carry it beyond the center, when centrifugal force will take it the rest of the way, and then treat the other basket the same way. You must "slow up" to do this, for the left hand is not quick enough to do it under full motion. Still, with a little practice I found that I could make the proper push with the left hand without slowing up so very much. A piece of plank was in each basket, making it work about the same as with a pair of heavy combs. I was really surprised at the ease with which the baskets could be reversed.

I am not very well posted in all kinds of extractors; but from what little I have tried automatic extractors, I should prefer the Cowan. I know that the thought is likely to be, that an automatic machine works itself, and consequently requires just so much less labor. But if two machines that do the same kind of work are compared, I think we shall prefer the one that, on the whole, works best with the least labor. In any automatic extractor that I have tried, the automatic part is hardly automatic in the strict sense of the word, for it requires care and some skill on the part of the operator to accomplish the reversing. True, it is done with the hand that turns the crank; nevertheless, it is a fact, I think, that, in the hands of an inexperienced person, the simple act of reversing the motion does not of necessity reverse the baskets. I think it requires less skill to run the Cowan, and that one learns to run it in less time. Moreover, it requires less time to reverse the Cowan. The automatic must come to a dead stop, and the motion must be reversed. The Cowan does not stop—merely "slows up" for the left hand to do its part, then resumes its former speed.

I can not say how it may be with others, but for me it is much easier to turn a crank that moves in the direction of the hands of a clock than to run it in the opposite, or what might be called backward, direction. In running the automatic, when the baskets are reversed the motion is reversed, and of necessity you half the time turn the crank backward. With the Cowan, no change of motion is made; and, no matter how many times you reverse the baskets, you continue to turn the crank all the time forward, unless you prefer to turn it all the time backward.

Possibly, if I were more familiar with the matter my views might undergo some change; but it seems to me that the main principles which I have mentioned would remain much the same. But it must be remembered that the Cowan runs only two combs at a time. To make a four-comb Cowan, I think the can would have to be very much larger than that of a four-comb automatic.

CONTRACTION IN HARVEST.

A correspondent from far-off "bonnie Scotland" wants me to say whether I have come to any settled conviction concerning matters mentioned on page 66, in "A Year Among the Bees." I can hardly say that I have come to any settled belief as yet; but I became so little satisfied with any vacant space under the super, that, for some time, I have left eight frames in the hive the year through. Aside from any thing else, there is one very serious objection to having any thing like a vacant space under any part of the super. The bees positively refuse to do as good work above any thing except brood-combs. I have tried it having all closed up carefully under the part that contained no brood-combs, and I have tried it with an open space under; but for some reason the sections directly over the brood-combs are worked the best; and I should want a good deal of advantage in some other direction to balance this.

Moreover, I don't feel so sure as I did, that, in the long run, there is any gain in limiting the laying room of the queen. I know what some will reply, and I can reel you off a very pretty theory about not having a lot of idle consumers reared which will have nothing to do, but I haven't been able to see that the bees gave as much respect to the theory as they should, and it's a good deal less trouble to keep the same number of frames in the hive the year round. If you take away part of the frames at time of honey harvest, they must be taken care of till later, and then they must be got back again, and it isn't certain that the brood-nest will be in as good shape for winter when combs are put in late as when they have been left there throughout the season.

In the case of those who allow natural swarming, the case may be different. I can not speak from actual experience. It certainly looks as though for a time after being hived, a new swarm with limited brood room should do excellent work in the super. I think this is claimed by those who ought to know. But it is possible that some of the after-results are not just such as would be most ardently desired.

I am also asked to tell the size of my frames. The most of them are 18x9, outside measure. I wish that they were ⅜ shorter and ⅛ deeper—not that I think any noticeable difference in the working of the bees would result, but 17⅝x9⅛ is a standard size in this country. I am gradually working into the standard size with Dovetailed hives. If I were in Scotland I should likely use the standard British size, 14x8½.

If I should give the address of my correspondent, I am afraid there would be an exodus of bee-keepers from this country to settle about him. Just listen to this benighted hea—I mean Scotchman. He says, "I am a Scotch farmer, and work 50 colonies of bees during spare moments from farm work. I never saw an apiary but my own, and never had personal instruction. What I know about bees is from reading. . . . As I am situated among the bonnie heather-clad mountains, my main crop is heather honey, for which I get from 1s. to 1s. 6d. (25 to 37 cents) per pound section. . . . . I have never yet been able to supply all orders, and am therefore sold out as soon as removed from the hive." Just think of 25 cents a pound, with an unlimited market! Wouldn't I just like to pounce down on that Scotchman some day, in his mountain fastness! C. C. Miller.

Marengo, Ill., Mar. 21.

[We reproduce the cut which appeared some two months ago, in order that our readers may more clearly understand the operation that Dr. Miller is describing. Perhaps in answer to the last paragraph we ought to state that it is not practicable to make the Cowan a four-frame extractor—at least, with frames as large as the Langstroth. We have a two-pocket machine—each pocket wide enough to take in two Heddon combs. If any one desires a *four*-frame Langstroth reversible extractor, he had better purchase the Stanley. In our opionion this is the best automatic reversing extractor for four Langtroth combs. For the majority of bee-keepers the two-comb reversible Cowan would answer every requirement. One has only to try it to determine how much more rapidly it can be operated than the ordinary two-comb non-reversing extractor.]

THIN VS. THICK, OLD VS. FRESH FOUNDATION FOR SECTIONS, ETC.

EXPERIMENTS THAT ARE TO BE CONDUCTED BY THE DEPARTMENT OF APICULTURE, AT THE MICHIGAN AGRICULTURAL COLLEGE.

It has seemed best that the experiments here should be along the line of practical work in the apiary. As bee culture has been my occupation, and as I have never had the opportunity of special scientific training, practical experiments seemed to me to open the surest way in which I might be of benefit to the bee-keepers. Practical work in experimental science, or the practical proving and testing of scientific truth, has been most valuable, especially when directed toward that great subject of recent scientific research, agriculture, and its allied branches. If the material development of bee culture can be assisted by these practical experiments, it seems to me that more will be accomplished than if purely scientific—or, rather, theoretical—lines of work be considered.

With this in mind I have undertaken to work this summer upon a number of experiments of considerable practical interest. I have chosen to speak first of the one described below, because preparation for it should be begun immediately, and because I desire some help from others. This subject is one in which I am interested, and about which much more than we now know might be learned. There are many subjects in bee culture, our knowledge of which is based on suppositions, on single observations, or upon dogmatic statements that are allowed to be repeated continually in our bee-journals. Our bee-keeping literature is so full of this that we are nearly all continually falling back upon these facts (?) to find a basis for argument that often leads to serious error. There is much of this, it strikes me, in our knowledge of the use and abuse of comb foundation. The improvement in the methods of manufacture, and in the perfection of this product, have kept pace with our knowledge and experience, and even gone further. It has been supposed that the side walls of comb foundation should be high and soft, and the base very thin; and the manufacturers have accomplished this. Again, when the flat-base foundation was introduced, being much thinner than any before made, it was said that, therefore, it was best to use it, as less "fishbone" in comb honey resulted. If foundation in sections is worked or drawn out by the bees as much as is commonly believed, why should there be more fishbone in honey when the heavier foundation is used? The experiment in Ontario last year with comb foundation seemed to point with emphasis toward the fact (?) that bees do not thin the septum of foundation according to tradition. I should like to see this experiment continued to foundation 14 ft. to the pound, both natural and flat base, and under more varied conditions of climate and honey-flow. The flow in the experiment above was in all the cases, with one exception, light, and in that case the flow was artificial. The experiment that I have in contemplation extends the work to flat and natural base foundation of both 11 and 14 ft. to the pound, combining and alternating so that there may be numerous checks upon the correctness of the work. The relative worth of these weights and kinds of foundation will thus be tested, not only to determine the comparative extent to which the foundation is manipulated by the bees, but to discover which variety gives to the finished product the finest appearance and best combs for shipping. In a poor season we suppose some kinds of foundation are not worked as readily as others, but are often gnawed away to be rebuilt imperfectly if at all during subsequent flows.

Starters will be compared with full sheets of foundation, and by photographs and measurements the relative appearance of the finished combs presented, as well as the weight or quantity produced in each manner.

Southern wax is said to possess certain properties peculiar to itself, rendering foundation made from it more brittle, and thus less liable to be drawn out by the bees. The attempt will be made to discover whether this difference is real, or whether it exists only in report.

Old foundation is said to dry or harden in such a manner as not to be acceptable to the bees. This foundation, both one and two years old, will be compared with new and fresh foundation. The extent of injury done by using this old foundation will be estimated by a comparison of the amount and grade of honey produced.

Of course, these experiments will depend largely upon the season for the value of their results, which in a good season would be very different from the results during such a season as last year. They each would in their place be valuable. It would be very interesting and valuable to compare the results to be obtained during various seasons and in various localities, and with various races and strains of bees.

With this end in view I have made arrangements with one of our well-known foundation-makers to supply the required foundation to a number of bee-keepers in various localities. I should like one person in the East, one in the lower Ohio River Valley; one, say, in Nebraska, and one in Wisconsin or Minnesota, and perhaps one in the irrigated region of the West, to signify their willingness to help me in this. It will not cost a large amount in either time or money in any apiary run for comb honey. On the other hand, although it will require some care it will, I hope, be interesting to the bee-keepers undertaking it, to observe personally the results of the experiment in one case. I will forward full directions and blank forms to render the work more exact and simple, with detailed explanations, to those who are selected from the various localities. It will require about 25 supers to contain all the foundation and combs used in the experiment, so that at least 25 colonies are necessary. The experiment will probably not affect the amount of honey to be obtained from these colonies.

Prof. Cook has suggested to me, with regard to the above, that an exhibit at a fair, of the honey obtained in this experiment, would be very interesting and instructive to bee-keepers. It could be labeled, "This 25 lbs. of honey was produced upon starters of foundation only;" "This upon foundation 14 feet to the pound;" "This in empty combs left from last year," etc. Bee-keepers interested in fair exhibits of honey will, of course, take the cue as to the possibilities in this line. I wish to hear from those interested as soon as convenient, that arrangements may be made in ample season.

Since concluding the above I have received Gleanings for March 15th, and was much pleased at seeing there Mr. Elwood's article upon the spraying of fruit-trees. At the Michigan bee-keepers' convention last January I offered to have samples of bees analyzed for the presence of poison. There should be a handful of them, whether mature bees or larvæ. To determine whether the poison came to the hive in the pollen or in the honey or in both, in cases where the larvæ are poisoned, samples of the freshly gathered honey and pollen should be inclosed. If it is possible to detect such a small quantity of arsenic as would kill a handful of bees, I think it can be done here. Having found the poison, the next step is to determine how it got there.

The strength of arsenites as recommended is generally one pound to two hundred gallons of water. Now, if each drop of these two hundred gallons contains dozens of particles of insoluble arsenic, who will say that the bee can filter them out? We know that pollen grains are found in honey and in the food of certain larvæ, probably in the latter case having entered the second stomach mentioned by Mr. Elwood, been partly digested or dissolved, then regurgitated with the larval food. Will not grains of arsenic also penetrate here and be fed to the larvæ?

Now, this arsenic can come from the trees to the hive in two ways: It may be taken in by the bee sipping the water or nectar diluted with this water containing arsenic, it which case it is very easy to see how the larvæ may be poisoned; or it may be gathered on the legs of the bee with the pollen which it takes from the blossom. In order to kill the young larva of the codling moth, the poison must lie upon the "blow," or corolla, of the embryo fruit, whence it is very liable to be gathered by the bees with the pollen or honey.

If horticulturists insist upon spraying during fruit bloom, and bees are poisoned thereby, o course laws should be made protecting the bees. I believe that fruit-men are coming to consider their own interests in the matter of spraying. Few or no entomologists recommend spraying during bloom, and fruit-men here in Michigan, with whom I have talked, are heartily in accord with the desires of bee-men on this point. Spraying before bloom may be desirable; but bees would not, I think, be injured by such spraying. It would be interesting to know what insects Prof. Lintner would combat best by spraying with arsenites during the bloom of the common fruits. With regard to the strength of the mixture of arsenites most desirable for spraying, experiments have been made at various State stations; and a gentleman who sits beside me as I write, and who has had considerable experience along this very line, says he believes there is no danger of injuring the germs of the fruit when the arsenites are of the commonly advised strength, if applied at any time. As Mr. Elwood says, there "is here room for experiment." J. H. Larrabee.

Agricultural College, Mich.

[In the above, Mr. Larrabee shows that he is the right man in the right place. In another column we publish the experiment made by the Ontario Agricultural College and Experiment Union. On page 239, J. A. Green gives some suggestions that bear directly on the line of experiments proposed above; and on page 228, Mr. Elwood suggests some practical fields for practical experimentation.]

HELEN KELLER AND TOMMY STRINGER.

THE MASSACHUSETTS SCHOOL FOR THE BLIND.

BY A. I. ROOT.

On my return home I was informed that the sum of $124.65 had been collected from the readers of Gleanings, and forwarded to Tommy Stringer. Doubtless these contributors and the readers of Gleanings in general will be pleased to learn something of the work that is being done there; and in order to give a fair glimpse of these I will make some extracts from the 16th annual report of the Perkins institution. I presume copies of this report can be obtained by writing to the Massachusetts School for the Blind, at Boston. It is a big paper-bound book of 408 pages. Besides Helen and Tommy, there is another very promising pupil from Throckmorton, Texas, named Willie Elizabeth Robin. Down south, Willie is a girl's name, as you will please remember. I have chosen her case, as it gives one an insight to the methods of working. The first extract I make gives an idea of her attainments before she came to the institution:

> Willie (nearly eight years old) was once taken to town, where she had a tooth extracted. Six months afterward the doctor who pulled it called at the house with another physician. The little girl examined the stranger first, by passing her hands over the soles of his feet, then smelling of her hands; then touching him in various places in like

manner. Finally she turned from him to the doctor whom she had met in town, and, after a similar inspection, she opened her mouth and touched with her finger the cavity left by the tooth he had extracted.

She seemed to judge the size of persons by the length of their feet; but she measured children by their height from feet to head, and chose for playmates those nearest her in size. She made known her wants by signs, and it was necessary to give her a sign but once. When she came in contact with something beyond her comprehension she would make a great effort to talk, uttering such sounds as *bah, ah, bah!* and once, about a year after her loss of hearing, she spoke the word *ma* as plainly as she used to speak it. Such was Willie Robin when her mother brought her to the kindergarten, Dec. 20, 1890.

She possesses great physical strength, and a will that is equally strong. At first, having no language with which to express her feelings, if she were urged to do something against her will, she resorted to primitive means of expression, and would strike and kick and even bite. On a few occasions, when in a passion, it has been very difficult to control her.

The following tells us of her progress just eleven days afterward:

On Dec. 31, Willie's lessons began. Three words were selected,—*fan, hat*, and *ring*,—and, provided with the corresponding objects, Miss Thayer seated herself beside her little pupil, and began work in real ernest. She gave Willie a small fan, allowed her to examine it and use it, then made the letters *f-a-n* in the child's hand. She gave her another fan, again spelling the word, and, after showing her several, of different styles, and spelling the word each time, she took a *hat* and repeated the lesson with that object. After a little while Willie grew mischievous, and hid in her apron the hand in which her teacher had spelled these words to her. In the gymnastic class she did not in the least understand the exercises, and was somewhat troublesome; but when, in the afternoon, she received her first lesson in kindergarten occupations, she did much better. With the help of her teacher she wove a mat with splints, and then began to string alternately a cube and a ball. This she liked so much that she was unwilling to leave it when the bell rang for recess.

The lessons upon these three words were repeated day after day, and she was taught to fashion the objects with paper and with clay. January 3, her teacher gave her a lump of clay, spelled *h-a-t* in her hand, and by signs indicated her wish that Willie should make one. She repeated the spelling several times, and then left the child to herself, and awaited the result. To her surprise and delight, her little pupil produced a hat. Yet she could not be sure that it was not by a happy accident that the child had hit upon the right object. She wished to test her. The day before, Willie had made first a hat and then a fan, and Miss Thayer had already seen that she was inclined to repeat things in the exact order in which they were first learned. To test her knowledge of the word, therefore, she again called for a hat, and again the little girl modeled a hat. Then her teacher spelled *f-a-n*, and Willie made this, also, after a little hesitation. She was asked to make it again, but, having made two hats, she seemed inclined to make two fans.

January 7, her teacher's diary records that she spelled the three words. January 9, she was given a lesson in the actual use of language. She dressed herself for a walk, except her hat, which her teacher had put out of her reach, so that she might ask for it in finger speech. This she did not seem inclined to do, and even sought to avoid it by pretending to be sick, by wanting water and other things; but her teacher persevered, and at last, finding that her pretenses were of no avail, she yielded, and tried to spell *hat*. The next day she was observed spelling the word in her own hand. January 12, she was taught the words *bread* and *water*, and she was again seen spelling words in her hand. In less than two weeks from her first lesson this little girl was beginning to talk to herself by the manual alphabet.

The next gives us some idea of the questions that naturally came into her little mind when she began to discover that she could make inquiries and get answers. Is it not touching?

Willie manifests so strong an inclination to *talk* that her teacher has already taught her to articulate a number of words, such as *mamma, man, mill, moo, arm, Tom*. Her voice is so natural that it is difficult to believe that she can not hear. In some way she caught the idea that we talk into people's ears; so one day she put her mouth close to the ear of her teacher, and said *mamma!* She was delighted when she found that Miss Thayer heard what she said, and put her own ear close to her teacher's mouth, that she might speak into it. She asked if Tom could hear. Her teacher told her that neither she nor Tom could hear,—that when she was a little baby she was very sick, and that made her deaf and blind. Many questions followed. She asked about Edith and Helen, Dora, Katie, and several other children who had been her companions, and was told that Helen, Edith, and Tom were blind and deaf like herself, and that Dora and Katie were blind, but they could hear. She was interested in what she was told, and probably understood it. Doubtless it is well that she has learned the fact so early, and will have ample time to become familiar with it before she is able to realize its significance.

We now come to Tommy Stringer.

On the 8th day of April Tommy was brought to the kindergarten by the nurse who had taken care of him at the hospital. He was then four years and nine months old, in good health, and physically well developed. Mentally, however, his sickness, its results and his subsequent environment had retarded his growth, and left him a pretty child, with baby face and manners. At every friendly touch he would turn with arms outstretched to encircle the neck of any stranger. He showed no preferences among persons, and would go to one as readily as to another. He walked but little, and, if left to himself, would drop upon the floor and begin to creep. He manifested a happy disposition, his face was generally lighted by a gentle, placid smile, and in his whole appearance he was a remarkably sweet and winning child. He had no signs to express his wants except those of early infancy. He would cry lustily if deprived of something he wanted, and struggle vigorously to go in the direction he wished. In creeping he usually went backward,—probably because he had learned by experience that his feet suffered less than his head in encountering obstacles. His favorite plaything was a bunch of keys, and with this he would amuse himself for a long time.

His attendant in the hospital was a night nurse, and Tommy had been accustomed to sleep much during the day and to be wakeful at night. The first efforts at the kindergarten were directed toward reversing this habit, and it was not long before he slept at the usual hours of healthy childhood. A special teacher was provided for him, and the same methods have been employed as with the other children, but as yet he has not learned the name of any object. Day after day he passively allows his fingers to be put in position to spell the name of some object which is shown to him, but he makes no attempt to form the letters for himself, and they are evidently meaningless to him. He has given up creeping, and now walks perfectly well; he examines objects with some skill, and there seems no lack of intelligence in the little fellow. As yet, however, it is only passive, and we all await with eager interest the awakening of the dormant mental powers.

The following, from our little friend Helen Keller, whom we feel somewhat acquainted with by this time, tells us in regard to Tommy's progress a little later:

South Boston, Mass., Dec. 29, 1891.

My Dear Mr. Root:—The money that you sent for Tommy came on Christmas day, and I thank you for all that has been done, through your paper, for my little friend Tommy. I saw him Christmas, and I do not believe there was a happier little boy in all the land than "baby Tom." He was sitting on the floor, in the midst of what seemed to be a wilderness of blocks, stuffed animals, steam-engines, and all sorts of toys. He appeared to like the blocks best. He has learned to weave paper very nicely, and to help himself in many ways. But he does not learn language quickly. He can spell *bread, boot*, and *mug*, and he knows that they are the names for the objects, but he does not like to ask for the things with his fingers. Teacher says he does not see the necessity for words yet. He is like a little baby, just beginning to notice things.

Please thank the kind people who have contributed to Tommy's fund, and tell them that we have eighteen hundred dollars now, almost enough to pay his expenses for three years. Surely they will all be glad to hear this good news! It will make their own lives better and happier to think that they have helped to bless and brighten a little child's life. May the New Year richly fulfill all the good wishes that my heart holds for you, and all who have helped you. Affectionately yours,

HELEN KELLER.

Now, friends, is it not true that we all feel happier for having done this little for Tommy? Is there one among us who does not feel that it has been a good investment? "He that giveth to the poor lendeth to the Lord."

A wonderful and cheering fact comes in right here. These poor deaf, dumb, and blind children have a remarkable faculty for helping *each other*. Read the following additional in regard to Willie Robin:

> Meanwhile she had made the acquaintance of Edith Thomas. From the first Willie seemed strongly attracted to her, and when, on the 13th of January, Edith went to the kindergarten for a visit of a week, the two little girls were delighted to meet, and became almost inseparable. Willie would follow Edith's every step, happy in doing just as she did; and Edith, understanding that Willie's condition was like her own, began to help in teaching her as she had herself been taught. She was told the words that Willie was trying to learn, and gently and patiently she repeated the lessons over and over to Willie, and with her help in the gymnastic exercises the new pupil began to behave much better, and tried to do as the others were doing. She evidently liked to learn from Edith, and when the time came for her little teacher to return to South Boston Willie wanted to go too.

You see, friends, poor little Willie took a new start when she found she had a comrade in her affliction; and Edith was enabled to do a kind of teaching that even the teacher could not do; that is, she, a poor blind, deaf, and dumb child could take hold of the work of educating another deaf and dumb child, and so really accomplished things that perhaps the teacher with all her faculties could not. There is a great lesson here. It is not always *angels* that are needed to help us out of our troubles. It is some child of humanity who has troubles like our own. And now we see why "God so loved the world that he gave his only begotten Son;" and this Son, in order to do his work most effectively, came down from heaven and became one of us.

> For it became him, for whom are all things, and by whom are all things, in bringing many sons unto glory, to make the captain of their salvation perfect through suffering.—HEB. 2:10.

RECENT DEVELOPMENTS.

BY E. R. ROOT.

OUR LATEST IMPROVED DOVETAILED HIVE.

What a pleasure it is to have nice accurate engravings—those that show every detail exactly as it is in the original! We recently took some photographs of the Dovetailed hive and its parts, with every thing arranged to show them up to the best advantage; and how well our engravers succeeded in reproducing the result is shown in the accompanying figures.

With the exception of one item, the separator D, no radical change has been made in the hive except what we have already illustrated in regard to the Hoffman frames and the new improved tin rabbets. These have been so universally accepted as improvements that no one has objected, even if it *were* a change. The latest change is not one that will make any serious inconvenience with hives already in use, but one that will be recognized as a move in the right direction. It is nothing more nor less than a loose wood separator, slotted out as shown in D, Figs. 1 and 2.

The whole fraternity, for the last year or two, has been gradually changing over from tin to loose wooden separators. The reasons for this are obvious. The wood costs from one-half to one-fourth as much as the tin. It is warmer—that is, wood will not conduct away the heat as will strips of metal running parallel through the heart of the cluster. Again, the surface of the tin is smooth, and bees can not readily run up and down upon it. They will therefore select the surface of the clean, nice, white cappings of the comb honey; and thus the latter, receiving from two-thirds to three-fourths of all the travel of the bees, is what is appropriately called "travel-stained." Now, by using wooden separators the bees will crawl upon the wood as readily as upon the cappings of the comb; and this must necessarily reduce to a corresponding amount the tracks of the bees on the comb honey.

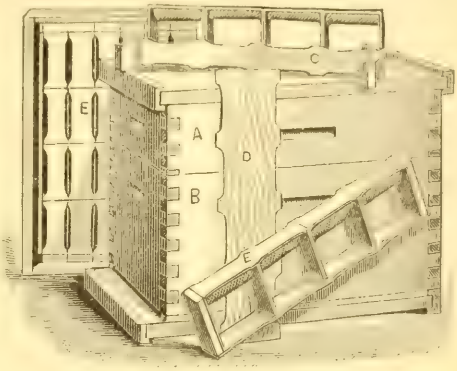


FIG. 1—THE LATEST DOVETAILED HIVE.

By increasing the width of the wood separators, we secure another and very important advantage. D, Figs. 1, 2, show a wooden separator that is 4½ inches wide. It is wide enough to cover from top to bottom the entire upright edges of the sections as well as the edges of the bottom slat C in Fig. 1. It should be remembered that ordinary separators are only 3½ inches wide, and consequently there is ¾ inch on the upright edges (and about as much of the horizontal edges of every section that is left exposed; and, worse than all, these exposed edges are the best place for the bees to chink in propolis; and the result is, a considerable in-

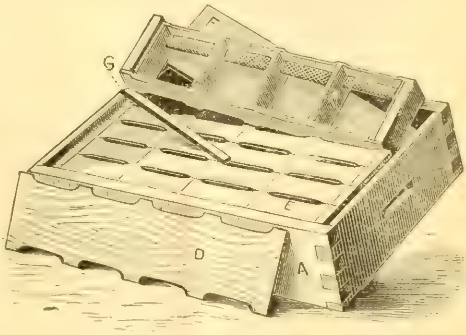


FIG. 2—DOVETAILED SUPER WITH SECTION-HOLDERS, IMPROVED WOODEN SEPARATOR, FOLLOWER AND WEDGE.

crease in the labor of scraping after the crop is removed from the hives. Our wooden separators for the Dovetailed hive, cover the entire upright edges of the sections, as well as the horizontal edges not scored out in the sections and bottom slats C, in Fig. 1, where they come in contact. With these wide separators between each row of sections, keying up closes up the interstices so that the actual scraping of the section, after the crop is finally secured, is a mere bagatelle beside the scraping of sections that have been filled in the old-style crates with narrow separators and no keying up.

Our method of keying up is illustrated very accurately in Fig. 2. G is the wedge; F, the follower. The wedge, strictly speaking, is not cuneiform, or tapering. It is simply a stick about 12 inches long, $\frac{3}{16}$ thick, $\frac{3}{8}$ wide. To key up, the follower is placed back of the last row of sections. The wedge is then inserted the narrowest way, between the super side and follower. It is then twisted so that the space between the follower and super sides is increased the widest way of the wedge, so that we now have $\frac{3}{8}$ inch instead of $\frac{3}{16}$. The end of the wedge sticking up is then turned down out of the way. The surplus arrangement is then so thoroughly keyed up that it may be turned upside down, yes, inverted, if thought advisable, when the sections are half full.

There is another feature that perhaps you may not have noticed; and that is, that, when the crop is coming in slowly, the outside rows of sections may be alternated to the center, and the center to the outside, in order to secure more even comb-building and the filling-out of sections.

As to whether this wide slotted-out wood separator is new or not, is not important; but it is important to know whether it is practicable, and whether or not it is a labor-saver in the final scraping of the sections. Such an arrangement scarcely needs to be tested to demonstrate its merits. Any bee-keeper having a practical eye will at once recognize it.

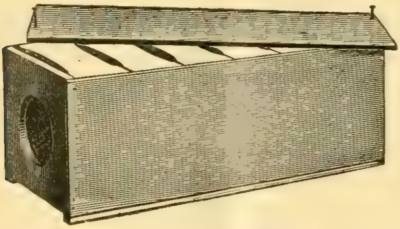


FIG. 3—D. SURPLUS CASE.

This resembles somewhat the old farmer's honey-box; and although it is now nearly relegated to the past, yet there is a demand for something on the style of the old case that will take ordinary sections. During the past eight or ten years we have filled orders, especially from California and the West, for an arrangement very similar to the D. section-case; and the fact that such a demand does not die out shows there is a legitimate call that must be supplied. When Mr. F. Danzenbaker, of Washington, D. C., was here two years ago he was very enthusiastic over a device of this sort; and while here he introduced what we have for short called the D. section-case. It contains six $1\frac{7}{8}$-inch sections, one end of which is glassed as shown. Each case is $4\frac{1}{2}$x$4\frac{1}{2}$x12 inches, outside measure. It will hold either six sections $1\frac{7}{8}$ inches wide, without separators, or seven 7-to-foot sections with small wood separators or without separators, follower and wedge. The case includes two sides, top and bottom, $\frac{1}{8}$ inch thick; and two ends, scant $\frac{3}{8}$ inch thick, and two little sticks $\frac{1}{4}$ inch thick, in lieu of T tins for the sections to rest on. Four of these section-cases will just go in a Dovetailed super, as shown in the accompanying engraving, and by the use of two supers tiering up can be practiced.

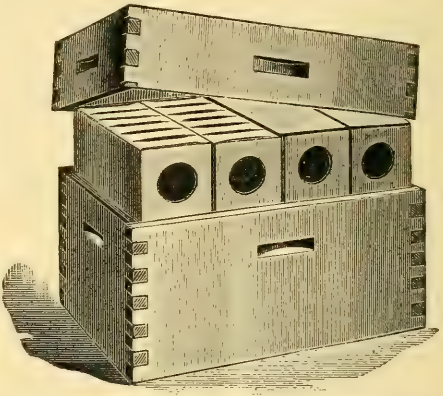


FIG. 4—SHOWING HOW THE D. SECTION-CASE IS USED ON THE DOVETAILED HIVE.

There are a good many small bee-keepers and farmers who, having only a few hives, desire to transfer the honey directly from the hives to the market. No, they don't even care to scrape the sections. They want a light little case that is both a surplus arrangement and a retailing-case—something that can be placed directly on the market among retail grocers, and that will sell for about $1.00. Of course, large honey-producers would prefer the section-holder surplus arrangement we have illustrated. But here is something that will just suit farmers. When the cases are full, if no separators are used, they can tell, without opening the hives any further than raising the super as shown in Fig. 4, just what the bees are doing. To put on the market, all they have to do is to nail on the cover and bottom. Of course, the sections may be stained somewhat with propolis; but the farmer bee-keepers do not care, because they sell honey to people whom they know—that is, right in their own vicinity.

HIGH-PRESSURE GARDENING.

BY A. I. ROOT.

I hardly need tell you there has been some pretty severe winter weather along through the middle and latter part of March. Our friends here in Medina say they saved a part of the winter expressly for me, so I need not miss it entirely, even if I was gone from the middle of November till the middle of March. In our locality it has done little harm unless to hot-beds and cold-frames not properly prepared. The fruit does not seem to be injured. Not so in the South, however. See the following, from the peach and tomato district of Mississippi:

> *Friend Root:*—The freeze struck us hard, *sure;* most of the peaches went up. Some varieties not bloomed out well, escaped. The tomato business suffered a great loss here About one-fifth were bit; but in most cases, where double beds run east and west the north side got it, even through three or four inches of straw; but no plants were lost in beds running north and south. J. W. DAY.
>
> Crystal Springs, Miss., March 21.

I suppose we may say to friend Day, that the prices will be higher in consequence, and that those who do get a crop by faithful hard labor will get a good reward for their pains. The damage to early peaches, however, is going to be a rather sad calamity.

ONION-SETS—WHAT THEY OUGHT TO BE LIKE.

The goods have been received in good order, all fully up to my expectations, except the onion-sets. They are not quite what they ought to be. No onion-set ought to be more than ½ inch in diameter, and I have sorted 1¼ pecks out of one bushel that are about one inch and over. Now, I will warrant all of these to run up a seed-stem, and perhaps a good many more; still, among the smaller lot this ought not to be so. But that is not all. They are mixed with some red onion. These red ones might be as good as the yellow, but they don't look so when put up in bundles, and I fear they will not sell so well. There is also a great difference in the two bags (I got two half-bushel bags). I would willingly give $1.00 more for the one than for the other, because it contains at least one-third more small onions than the other.

There is no question but they have been put up very carelessly; and I am sure that, if A. I. Root could only have them under his spy-glasses for one minute he would be ready to get hold of ——— Senior's shirt-sleeve and say, "Look here, old fellow, you must do better than that, or else you will ruin my reputation for sending out first-class goods only." Now, I don't want you to give me a rebate because they were not quite what they ought to have been. I only take the liberty to call your attention to it, because I think you don't know any thing about it. JULIUS JOHANNSEN.

Port Clinton, O., March 21.

Well done, friend J. Even if you have found some fault, you have given us some good pointers that I know by experience are valuable. I have become so disgusted with sets producing onions with a seed-stem, and then splitting up into two or three poor bulbs, that I have several times thought I wouldn't have any thing more to do with sets. As you are right, doubtless, we shall know how to remedy at least some of this trouble in the future. Peter Henderson and some others advertise that their sets are put through a sieve, permitting nothing to go through larger than ¾ of an inch. We notice you put it ½ inch. One thing is certain—a bushel of onion-sets under ½ inch will produce a great many more onions than the bigger ones. Those sent you were put up in my absence; but we will try to make it up to you, even if you are so good-natured you don't want any rebate. I agree with you, also, in regard to mixing red and yellow onion-sets together. Some dealers claim that it does not make any difference; but it looks to me like slipshod work. At the very high prices sets are now bringing, they certainly ought to be up to the standard you map out; and, to tell the truth, raising onion-sets is a business. To produce good ones, you want seed that is right; then you need soil that is right, and somebody to boss it who knows by experience how it should be done. There are a great many things in this world that are not as they should be; in fact, I see so many things that are wrong, almost every day of my life, that I almost think sometimes I am hard to please; but I do love to see things A No. 1; and where complaints are made in the good-natured strain in which you make them, friend J., it seems to me we ought all of us to try a little harder to do better.

STRAWBERRIES—HOW TO GET A CROP IN 60 DAYS FROM THE TIME OF PLANTING.

When Peter Henderson announced that, in his opinion, the cheapest way to grow strawberries was to have them occupy the ground only one season, there was quite a little stir about it. Since then one of the seed catalogues that advertised the Gandy strawberry sent it out under the name of the "First Season," advertising that the plants would bear a crop the same season they are put out. Well, as the Gandy fruits so very late they probably do bear a few berries. I am going to tell you of a plan whereby you can get at least a pretty good crop, and not have them occupy the ground more than 60 days. The hint of it was given me at the Inter-State Agricultural and Horticultural Convention held in Jackson, Miss. The speaker mentioned a certain field of strawberries, and gave the amount of land, and the number of quarts, and it was enormous; and he remarked that this result was obtained by selecting only such plants as had extra strong, very promising crowns; and he said, furthermore, that some of the plants, when put out, had not only blossoms but small green berries. As the ground was very rich, however, it took right hold and grew, and gave the wonderful result mentioned. Now, with the transplanting-tubes I have had good strong plants send out runners in 30 days after they were planted as I have mentioned. I have not, however, as yet tried taking up plants while in bloom; but I am making preparations to do it this season. The right kind of ground can be found just after some first crop has been removed in the spring, say spinach that has wintered over, winter onions, etc. Now, as soon as this ground can be spared, give it a heavy dressing with old well-rotted manure; work it up fine and deep, and, if possible, let the early seeds germinate. When they get near the surface, or just begin to show, rake the ground very thoroughly so as to kill every weed. This will get us a big step ahead in the matter of keeping weeds off from the crop. Now, with these transplanting-tubes select very strong, vigorous plants while in bloom. Take some of them with small green berries on if you choose. I am sure these can be moved with scarcely a setback. Take them where the plants are already too much crowded, and the bed where they are taken from will yield fully as much as before, and certainly give you larger ones. Fill the holes that are made in said bed with very rich compost. Now set the plants removed on your nicely prepared mellow ground. Keep the surface raked so as to keep weeds from starting; and if you can afford the trouble, I would keep the runners off; possibly the crop may be a little later in consequence of the transplanting. But this often gives a better price, you know. Still another thing: To avoid tramping on this soft, rich, mellow earth, I would set them in plant-beds six feet wide. In this way you can do all of the weeding and gathering without setting a foot between the plants. These plant-beds may be your ordinary hot-beds or cold-frames, where the crop has been removed. If a frost should threaten, it is an easy matter to protect them with sash or cloth. The latter can be used as friend Day uses it on tomatoes, and I do believe it will pay to raise a limited quantity of strawberries in beds covered with cloth. The danger from frost would thus be out of the question; and by having protection during cold nights they would certainly be considerably ahead of the main crop out in the field.

Terry, in the strawberry book, says that plants in the matted row should not be nearer than six inches; but in our rich plant-beds that I have spoken of I would have them about ten inches apart—this, of course, depending upon how long the bed is to be allowed to bear. If more than one year, more distance will be needed, depending upon the variety; and for such close distances the runners must be kept off, and the plant not be allowed to make more plants. In cutting runners, or even in gathering the fruit, a plank may be put across the bed from one side to the other, if found advisable.

NOTES OF TRAVEL

FROM A. I. ROOT.

Now, friends, there is a great moral here somewhere, if we can find it. At least *one* reason why we can not eat such food as other people do is because we do not have enough of the right kind of exercise. The summit of the mountain was still 1¼ miles further up; but we two did not particularly "hanker" after any more mountain climbing *that* night, "you bet." I slept in a very open bedroom, with plenty of air (and plenty of blankets), and feared I should be too stiff to move in the morning; but, to my great surprise, I wasn't stiff at all. Of course, I sat by that big cook-stove the night before until my damp clothing was perfectly dry.

In the morning we took a look at the valley below; but as the sun was not yet up to dispel the fogs and vapors of the night we seemed to be on a sort of island that pushed up through a great sea of clouds, and therefore we could only look about at the profusion of shrubbery and bushes. The picture of Camp Wilson gives you a very good idea of it. A good deal of the shrubbery that covers the mountain is the well-known manzanita, that sometimes gives quite a flow of honey in February. In fact, we found some already in bloom. It is easily recognized by the bright red wood of its branches. Very pretty rustic furniture is made from these bright-red branches. The small object on a high peak at the left of the picture (see last issue) is the observatory already mentioned.

We went to the top and back before breakfast, without a bit of trouble. At breakfast I ate with a relish several slices of fat bacon—something I never did before in my life—and, oh such lots of *other* good things! Our host had some mush made of farinose; and as they didn't have any cow up on the mountain, he told us to use with it plenty of condensed milk.

"Put on lots of butter, then lots of sugar, then lots of milk," said he: and, oh my! how delicious it was! I told him several times he was "swindled" when he made a reduction on *my* board and lodging; but he said he liked to see his guests have an appetite.

GOING DOWN THE MOUNTAIN.

Did I need my overcoat? Why, bless you, no; and yet it was so cold I found the ground frozen hard on the north side of the mountain-top, and the crust on the snow was so hard I could not get a piece loose with the heel of my boot. My sore throat, chilly right side, bowel trouble, cold in my nostrils and right ear, had all vanished in a way that seemed to me miraculous. Now, please don't think I am writing a puff in regard to the wonderful atmosphere of Wilson's Peak. Outdoor exercise and *enthusiasm* would do the same almost anywhere. Very likely the dry atmosphere of Southern California has something to do with it; and may be the soul-stirring scenery helped largely to get up the enthusiasm. While I write, a week has passed since that walk, and my appetite is still excellent, and I feel a degree of strength and vigor I think I never knew before in my life.

THE PARTY COMING TO THE RESCUE.

In many places the grade of the mountain was such that one could, if he tried hard, cut across the trail and run up the hillside so as to reach the trail at a point above. Of course, this cutting crosslots would be a great saving of time and travel; but the work is so very fatiguing, and so much harder, that most people prefer to follow the beaten track, although it takes them longer; and, in fact, few people could stand it to climb very long, straight up the sides of the mountain. In coming down the mountain, however, there are many points where the boys had "slid down" to some point in the trail below; and we made several crosscuts in this way that saved us quite a little travel. Where it was sandy and gravelly there was but little danger, even if you did fall, providing you did not tear your clothing or cut your hands and face. Friend Farr could not resist the temptation when he came to those crosscuts; and at one time he not only reached the trail below, but was under such rapid motion that he went past it and struck it still further down, saving nearly a mile of travel by what took him only a few minutes. As I had only one suit of clothing with me I did not dare to risk following him; besides, such a headlong way was more or less dangerous. In this way he reached Mrs. Root and her companions some time before I came in sight, and gravely announced that I was "used up," and he was after help. Friend Stevenson, who had brought Mrs. Root, brought along for company his niece, a schoolteacher and a young lady of rare culture and intelligence. The boys of the household also petitioned for a holiday to get acquainted with "Uncle Amos." Accordingly when freind Farr announced that I was used up they volunteered to come after me; and by dint of hard scrambling such as none but a *boy* can do, they met me coming down at a good rate along the beaten path, and soon passed the intelligence below that I was well and hearty. The first cut gives a glimpse of friend Stevenson, Mrs. Root next, then Mr. Stevenson's niece. Friend Farr brings up the rear. Your humble servant stood on the opposite side of the canyon, with the Kodak. The rocky cliffs above and below the pathway give one a very good idea of the mountain-side, and the task performed by the company who cut the trail. The next picture was taken near the foot. Mr. Stevenson and his niece come first; next Mrs. Root, then friend Farr; lastly the three boys. Two of them climbed up above a clump of bushes as you will see. Friend Stevenson has the Kodak case.

A moral lesson also comes in right here. A little of the right kind of enthusiasm will enable us to rise above temptation, in just the same way that we rise above physical weaknesses. Dear reader, can you not look back to the time when you were in a low spiritual state or plane, and when you wasted time in battling feebly against some low temptation that you now feel really ashamed of ; —in fact, that you ought to have felt ashamed of all the while? You may have wasted energy and strength in quarreling with a neighbor over some little trifle, when all your strength and energies were really needed in some wider and larger field—some place where you could have lifted humanity all around you, instead of having set a bad example to the poorest and humblest.

> They that wait upon the Lord shall renew their strength; they shall mount up with wings as eagles; they shall run, and not be weary; and they shall walk, and not faint.—Isa. 40:31.

In fact, it is with these low and earthly temptations as it is in climbing the mountains. When I once got above the plain, and looked abroad over this bright and beautiful world, I felt ashamed of being tired; and the inspiration of the grand view that opened out before me took away my weariness. When we pray for the influences of the Holy Spirit in our hearts, we should be prepared to rise above the little perplexities of every-day life. The words of my old favorite hymn come in just here:

Know, my soul, thy full salvation;
Rise o'er sin and grief and care;
Joy to find in every station
Something still to do or bear.

The last line of the hymn expresses it exactly. Instead of looking cross, and grumbling and complaining at our little trials and crosses, we want to get up high enough so we can step forward with a manly vigor; and while we draw into our lungs the beautiful invigorating air from heaven, feeling at the same time the blood forcing and tingling clear to our fingers' ends, we may also at the same time actually rejoice at the prospect of "something still to do or bear." I can not tell this, dear friends, as I should like to tell it; but I felt it that day, and I feel it yet. It is not my privilege to take you all by the hand and lead you with me along the trail up Wilson's Peak; but I exhort you to hold fast to the strong arm of the dear Savior, and let him lead you up, over and above the little trials, perplexities, and vexations of life, and along that pathway that goes ever upward as well as ever onward.

Before I start "down the mountain" let me digress again. This matter of physical health is of more importance to most of us than any thing else in the world, with *one* exception. While at Tropico friend Cole said I must meet a neighbor of his, near his apiary. When introduced, this neighbor said he knew me already, for he once had the bee-fever, took Gleanings, and read the A B C book. He gave me the following facts: His wife was nearly gone with consumption. He tried every favored locality, but she kept failing until he took her where she then was, at the foot of the mountains, near Los Angeles. The climate is dry, quite even in temperature, and no frost. By working with her husband every day, outdoors among the plants and fruits, she was really building up; and although one lung was nearly or quite gone, the other was developing to more than its usual size, so as to do the work of both. They managed so her exercise was just enough every day, and not too much.

I can not tell you *all* I saw from the top of the mountain. In fact, my story is too long already. The extreme summit seems to be on several peaks; that is, there are several that seem to be almost of a height. All are covered with heavy pine and cedar timber. One tree near the summit is marked "18 feet in circumference," and I can readily believe it true. The ocean seemed even nearer than the night before, and my companion named the different harbors all along the coast. It was all spread out before us like a map, almost from Santa Barbara to San Diego. I have inquired diligently for photographs of the valley and ocean, but am told that no camera is equal to do justice to such an immense distance. The observatory belongs to the Smithsonian Institute, and a telescope is now in process of construction for Mt. Wilson (so I am told), larger than any other in the world.

When I first took a look at the observatory from the valley below, it seemed like a miniature pint cup—a microscopic pint cup, in fact; for, after the place had been pointed out to you, you could see, glistening in the sun, the merest something made of tin. Well, when we stood beside it, it was a great circular edifice, perhaps 24 feet across and 12 feet high, covered with tin. This edifice rested on a circular track so it could be revolved by means of appropriate machinery. As the telescope rested on this structure, it could be made to cover any point in the heavens. Of course, this was a rude and temporary arrangement. The new one, with the great big telescope, is to be a very different affair, as a matter of course.

I went down with comparative ease, or at least it would have been so had I been duly prudent. We met Mrs. Root and her companions about a mile from the foot; but I was so anxious to get a particular Kodak view that I went back almost half a mile.

Did Mrs. Root get the fever as I did? This was a point I watched anxiously for. Yes, she enjoyed it almost as much I did, but she can not stand the hot sun as I can. She says, had she started quite early in the morning (say the break of day), she believes she could, under the stimulus of the wonderful scenery, have reached the shade of the trees, and from there made the whole eight miles, and enjoyed it. As it was, she went up a mile and a half, and as much more down, without *very* much fatigue. After an excellent lunch furnished by our good friend Richardson and his kind niece, we started up a canyon to see Eaton Falls. We were told it was only about a quarter of a mile up the canyon; but I think it must be a full mile of very hard walking—*much* harder than the trail up the mountain, making over 13 miles, the day after my feat of going up the mountain. I finally became so sore and stiff, that, after I sat down to rest, friend Farr would playfully lift me to my feet, and then extend his arms, as if I were a child learning to walk. For about three days the muscles of my legs were very stiff and sore; but after that I could walk three miles at a good rapid pace, without the least sign of fatigue, and now I enjoy such a foot-walk more than I ever did before.

CONVENTION NOTICES.

The next meeting of the Fayette Co. Bee-keepers' Association will be held in the City Hall at Washington C. H., O., Wednesday, Apr. 13th, 1892, commencing promptly at 10 A.M. The election of officers, in connection with an interesting program, will be the business of the day. In view of the fact that the Ohio State Bee-keepers' Association will hold its next annual meeting at Washington C. H., during the winter of 1892, we bespeak a good attendance. S. R. Morris, Sec.

Bloomingburg, O.

GLEANINGS IN BEE CULTURE
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If any of you lack wisdom, let him ask of God, that giveth to all men liberally, and upbraideth not, and it shall be given him.—JAMES 1:5.

THE officers of the Ontario Bee-keepers' Association are as follows: President, F. A. Gemmell; Vice-president, A. Pickett; Treasurer, Martin Emigh; Secretary, W. Couse. The association is well officered, and we heartily wish it unbounded success, even though it has not seen fit to affiliate again this year with the North American.

WE regret to learn that Bro. Newman, of the *American Bee Journal*, has been quite unwell of late, as a result of the grip, and that it will be absolutely necessary for him to take a vacation of a month or six weeks. In the meantime an old employe, Mr. C. W. York, will take charge of the journal. GLEANINGS sincerely hopes that the much-needed rest will restore him to health.

SINCE our last issue, Mr. W. O. Leach, of Coldwater, Ont., the inventor of the foundation-fastener illustrated and described on page 805, Oct. 15, 1891, has demonstrated to us personally that his fastener is a success—not only in folding sections but in putting in foundation, both operations being performed with one swing of a lever. The machines, we understand, are to be made in this country by the W. T. Falconer Manufacturing Co., of Falconer, N. Y. While here, Mr. L. told us that he could fold sections and fasten starters in the same at the rate of 1500 an hour. Some time ago, when we stated that our girls, with the Daisy foundation-fastener, could put foundation in the sections at the rate of 1000 an hour, the statement was challenged as being pretty big. It seems we were not overstating, in view of Mr. Leach's achievement, because Mr. Leach can do both operations at once.

OUR honey statistics for this year have hardly got under way. In the meantime, we request every subscriber to send us a postal card, and on it answer these two questions: 1. What per cent of your bees have wintered up to date? 2. How does their condition compare with former years? It is hardly possible that we shall get a postal card from each of our ten thousand subscribers, but we look for a large number. Bee-keepers all over the land want to know (or at least ought to) how well bees have wintered, because it will have a direct bearing on the extent of the honey crop the coming season. Simply answer the questions by number, and sign your name, nothing further, and we shall know what the cards are for. Don't put this matter off but *write at once*. The answer, to be available for the next issue, should be in as soon as the 12th, and this may block out some of the more distant subscribers.

SIGN YOUR NAME, ETC.

TO-DAY we have had three letters without any signature, and two more containing drafts without any indorsement. Now, we have scolded a great deal about this already; and I have strongly emphasized the necessity of having your name printed on your stationery, envelopes, and letter-heads. But Ernest just now says that, if you don't want to do that, you can have a rubber stamp made for only 20 cts., with your name and address. If you are too busy to print it on your letter-heads and envelopes, your five-year-old boy or girl will just like the fun of doing that kind of printing for you. If you have no five-year-old boy or girl, get a brother or sister, or hire some of the neighbors' children. But please do do something, so as to abate this annoyance both to ourselves and yourself. We do not complain, mind you, because you forget once in a while. The best of people do that; but nowadays there are plenty of ways of avoiding the disastrous consequences of such forgetfulness. If you haven't done it already, go this minute and put your name and address on both your paper and envelopes; then when you come to write a letter you can write as fast as you please, and don't need to bother about the address or any thing of the sort. I think, however, you had better have that rubber stamp. A. I. R.

HOW THE BEES HAVE WINTERED AT MEDINA; THE RESULT OF OUR EXPERIMENTS WITH SEALED COVERS AND ABSORBING CUSHIONS.

ALTHOUGH the winter has been unusually severe, bees both in and out doors have wintered the best so far that we have ever known them to do. We went into winter quarters last fall with a large force of young bees, and took extra precaution that every colony should be well supplied with sealed stores, even feeding some as late as the last of November.

Of the 26 or 27 in the cellar, there are the fewest dead bees on the floor, in proportion to the number of colonies, that we have ever known. In former winters we have had to sweep up the cellar bottom two or three times, each time scooping up a good peck of bees. The paucity of dead bees on the cellar bottom this spring we attribute not only to the fact that the colonies had young bees largely, the fall previous, but to the fact that there were fewer colonies in the cellar, and consequently very much better air and better ventilation. We have always noticed this: We have lost fewer bees, in proportion, on the cellar bottom when we had only a few colonies in the cellar, than when we had a large number; consequently, as we have before stated, we are beginning to believe more and more in better ventilation in bee-cellars, and that the idea that little air or no ventilation is necessary, has worked mischief, as some bee-keepers who have tried it know to their sorrow. One prominent bee-keeper writes us that, by following this advice, or theory, or whatever it may be called, that too much ventilation in the cellar is detrimental on unnecessary, he lost several hundred dollars. P. H. Elwood, who winters a little over one thousand colonies in one cellar, believes in plenty of ventilation of the sub-earth sort; and when bees are noisy he lets them have more air.

So much for cellar wintering. As to our colonies outdoors, we have so far at this date, March 26, not lost a single one out of a total of about 150. With the exception of two weak ones which we united, the rest were all strong and showed no signs of dysentery, and all seemed to be wintering about alike, and it did not seem to make very much difference whether they had absorbing cushions or sealed covers. If any thing, the difference is a little in favor of the sealed-cover hives, judging from those having glass tops. Another fact should be observed—that the sealed-cover colonies have had only about two inches of chaff or planer shavings, while the colonies with absorbing cushions have had anywhere from six to ten inches of chaff.

There is also another reason why our colonies are wintering so well. We have had continuously cold weather, with scarcely a day for flight, since about the middle of December. March, instead of coming in like a lamb, as it usually does with us, and allowing brood-rearing to get well under way, and finally going out like a lion, chilling the brood and giving the bees a bad setback, *this year* came in like a lion; and from present appearances it is going out like a lamb. The result is, we discover no traces of brood-rearing, and colonies have not been obliged, therefore, to disperse their strength and heat by trying to cover brood. Our March weather has been most favorable in that it was extremely cold—hanging around the zero-mark.

AGAINST ARTIFICIAL SUBSTITUTES FOR POLLEN, SUCH AS MEAL, FOR STIMULATING BROOD-REARING.

Our apiarist asked us whether he should put out any artificial substitutes for pollen, such as meal. We replied that we should rather not, and he readily agreed. It is desirable to have early brood-rearing for the early honey crop, but it is bad to have it get well under way *too* early in the season, and then have it killed by a cold snap. With our present light we do not care to encourage brood-rearing before the advent of settled warm weather, and therefore pollen from natural sources, such as soft maples, comes in just about the right time.

Times are changing. Two or three years ago self-spacing frames were not considered practical, and the reversing features of the latest honey-extractors were regarded as just so much surplus machinery. But bee-keepers are thinking differently now. Honey is being produced on larger scales, and better and more rapidly operated appliances are demanded; and these things come of necessity. While we welcome these improvements we should be careful not to chase after every "new fad."

The following, from the *American Bee Journal*, gives just the information that many are seeking:

> I see in the *Home Journal*, page 85, that space at the World's Fair must be applied for on or before July 1, 1892. I would suggest that you give plain directions as to whom to apply, and the expense of space, in the *American Bee Journal* and *Home Journal*, and oblige your MANY FRIENDS.

The editor replies:

> Apply to Mr. W. I. Buchanan, Rand-McNally Building, Chicago, Ill. There is no charge for space. Until a superintendent is appointed for the Apiarian Department, nothing definite can be arranged.

ADULTERATED EXTRACTED HONEY, AGAIN.

The adulterated-honey matter is not dropped by any manner of means. We are still collecting evidence, and an attorney's advice has been sought in one of the neighboring cities. When the right time comes we propose to make a move. We may not be able to accomplish much, but it will not be from lack of effort on our part if we do fail. In the meantime it is to the interest of every honest bee-keeper to see that adulteration of honey is stopped right in his own vicinity. The State and local bee-keepers' societies are the proper ones to make the fight. What are our societies good for if they can't do something of this kind? But for goodness' sake don't go and make a great furor and false alarm until you are morally certain that honey *is* adulterated in your locality.

Many of the mixers will be "scared" if you only let them know in a quiet way, that, as an organized body of bee-keepers, you propose to make an *effort* against them. If you can scare them into putting only pure honey on the market, you have accomplished your object without further warfare. This is no idle talk, for one firm with whom we have had correspondence relative to their adulterating honey, and what we proposed to do—well, we imagine are just a "leetle scared." The fact is, they know the law in their State is pretty strict, and that we mean business.

THE EDISON PHONOGRAPH.

It is really true, dear friends, that one of these wonderful machines is already in our office. In fact, I am just now dictating this, my first effort, with the machine. Well did our good friend Falconer say that it seemed like sitting down to one of the buzz-saws and talking to the machine It is noontime in the factory, and the hands have just been round the instrument listening to some beautiful pieces of music which were kindly sent with the machine to us. When the announcement of the piece is made it really seems as if we could be with the speaker as he stood before a sea of faces in some vast audience. He raises his voice, and, with the inspiration natural under such circumstances, he introduces the melody. Then we can see the band of musicians, each one taking up his instrument to do his level best, and here we have it away back in Medina, with a crowd of listeners all around us listening to these soul-inspiring strains. One of the pieces is a whistling piece, and the happy melody of the whistler is so infectious as to get hold of each one of us. Some of the old, staid, gray-headed ones, almost seemed inclined to begin to swing their hats, and skip about. By the aid of a large black horn the sound of the voices and instruments are plain enough so they may be heard all over the room. In fact, while we sit at our tasks several feet off from the instrument we can hear the melody of the pieces. I have so far occupied about half of one of the cylinders. After it is talked all over (or *written* all over, whichever you would call it) it can be turned off by an appropriate machine, and then we can write it over again. Each cylinder is capable of being turned off from 50 to 60 times. To hear familiar voices uttered so lifelike and plainly from the instrument seems something even more wonderful than any of the tales of the Arabian Nights. But here it *is* a startling and tangible reality; and one holds his breath, as it were, while he stops to think what is coming next. Who knows but the time may be near at hand when the editor of GLEANINGS will be able to speak in his own natural voice to his 10,000 readers? May God help us to make good use of the opportunities that lie about us during this 19th century.

As I brush the dust from the cylinder and notice the indentations produced by my voice, it seems absolutely wonderful that human ingenuity has been enabled to make use of these microscopic indentations; and yet it is indeed true; for when, by a little modification of the instrument, it is made to speak back to me the words I have been speaking, they are even plainer than I ordinarily utter them; and even the sound of my breathing has been faithfully recorded.

The great value of the instrument in a business point of view is this: The business man may at night, whenever he has leisure, or whenever he *feels* like it, talk his messages that are to be made known to the world, to the machine; and after this, when it may be convenient an operator, not necessarily a shorthand writer or one particularly skilled, may take the machine and simply transcribe what is spoken to him as plainly as his employer would speak to him if he were constantly by his side. Nay, he can make it speak it over and over as many times as he wishes, and he can then, at his own leisure, write up the letters. As the machine has sinews of steel and brains of lightning it is not expected that it will get sick; but there it stands at its post, day and night, ready to take down messages whenever its owner shall feel like giving them. The moter power that runs the machine is one of the noted *storage batteries*; and what a wonderful thing is this storage battery! Ours, although it cost only $15.00, will run the machine 30 hours; and when it is run down (or emptied) it can then be replenished by our dynamo, and it is ready for 30 hours more. The world scarcely yet dreams what is forthcoming from storage batteries. I am told already that an electric railway car is being run in the city of Cleveland by aid of the storage battery. Thus these overhead wires that have been making so much trouble, and have been the cause of the loss of lives, are to be dispensed with. Our storage battery weighs 25 lbs., and occupies comparatively little space. When the machine is to be used we first start the electro-motor run by the storage battery; then when the operator is ready to speak, he simply turns the lever that sets the recording point to work. A. I. R.

TOBACCO COLUMN.

CONDITIONS UNDER WHICH WE GIVE SMOKERS TO PERSONS WHO STOP USING TOBACCO.

First, the candidate must be one of those who have given up tobacco in consequence of what he has seen and read in this department. Second, he promises to pay for the smoker should he ever resume the use of tobacco in any form, after receiving the smoker. Third, he must be a subscriber to GLEANINGS. Any subscriber may, however, have smokers sent to neighbors or personal acquaintances whom he has labored with on the matter of tobacco-using, providing he give us his pledge that, if the one who receives the smoker ever uses tobacco again, he (the subscriber) will pay for the smoker. The one who receives the smoker in this case need not be a subscriber to GLEANINGS, though we greatly prefer that he be one, because we think he would be strengthened by reading the testimonials from time to time in regard to this matter. The full name and address of every one who makes the promise must be furnished for publication

If you wish to add one more to your tobacco list, you may send me a smoker and I will live up to the requirements. R. M. LEWIS.
Omaha, Neb., Oct. 17.

Please send a smoker to H. B. Robinson He says if you do he will not use any more tobacco; if he does I will pay for the smoker.
Tracy Creek, N. Y. MRS H. B. ROBINSON.

Please forward to my address one smoker for Geo. W. Crist, who has quit the use of tobacco, partly through the influence of GLEANINGS. If he should relapse I will see that you are paid for the smoker. JOHN NEWSOME.
Woodburn, Ia., Oct. 26.

Since I have subscribed for GLEANINGS I have resolved to quit the use of tobacco for ever. Please send me a smoker. I will pay for it if I use it again. L. C. WORTH.
Loyd, Wis., Jan. 29.

I have another convert to report. Please send a smoker to W. H. Hughes, Sonoraville, Ga. If I ever know him to use the weed again I will pay for the smoker. R. W. STEWART.
Sonoraville, Ga., Jan. 16.

Please send a smoker to R. L. Benford, Hampden Sidney, Virginia. He stopped the use of tobacco two months ago, after using it ten years, and if he ever uses it again I will pay for the smoker. LUCY E. MARTIN.
Hampden Sidney, Va., Oct. 12.

I read the Tobacco Column and your promise to give a smoker to all who would quit using tobacco. I never smoked a pipe of tobacco in my life, but I smoke my bees with a cigar. I often make myself sick. I don't know how the poor bees feel; but I give you my pledge to quit using tobacco in all its forms, with the Lord's help, or I will pay for the smoker.
Streator, Ill., Oct. 7. THOS. B. FERGUSON.

Send Mr. Matthew Strickland, of this place, one smoker. He has quit the use of tobacco for ever, and promises to pay for the smoker if he ever uses tobacco again. W. B. ENOCHS.
Emporia, Miss., Feb. 20.

Mr. L. F. Clark, of this place, has used tobacco for over thirty years. Since he has taken GLEANINGS he has quit; and if you will send him a smoker he will pay for it if he ever commences again. F. J. FARR.
Acton, Cal., Sept. 11.

You will find inclosed 70 cts. for payment on the smoker you sent me for my friend Robert Jones as a reward for his quitting the use of tobacco. I am very sorry he has begun the use of tobacco again. He paid me for the smoker, and requested me to pay you for the same.
Morgan, Ky., Dec. 26. HENRY C. CLEMONS.

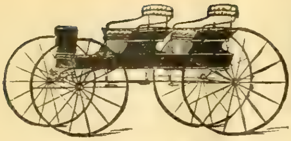
I have this day received a promise from Mr. Ed. Germane that he will discontinue the use of tobacco from this date. This promise is secured through the influence of GLEANINGS, and by my persuasion. You will please send a smoker to his address, which is Terre Haute, Ind. In case this promise is broken I am security for payment of smoker. W. SHIELDS.
Terre Haute, Ind., Sept. 29.

I have been persuaded by what I have read in GLEANINGS, to quit the use of tobacco. Please send me a smoker; and if I ever use tobacco again I will pay for the smoker. Please send a smoker also to Charles Hodges, who has, through the influence of reading your Tobacco Column and Home Papers, in my GLEANINGS, concluded to quit the use of tobacco. Please send him a smoker; and if he ever uses the weed again I will pay for the smoker.
Annin Creek, Pa., Oct. 10. G. F. TUBBS, JR.

I chewed tobacco from a boy until I was some 25 or 30, and quit, firmly convinced it was closely related to the whisky habit. I have smoked for over 25 years. One year ago last January I firmly decided never to use the weed again, and have not touched it. To many tobacco friends I would pleadingly say: Abandon the soul-destroying weed, and the money spent for the poisonous luxury invest in literature for the family—our boys, our girls, and our neighbors. If I am entitled to a smoker, please send one to my address. WM. H. SWIGART.
Dixon, Ill., Feb. 25.

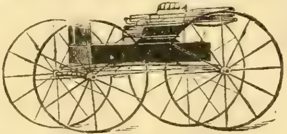
Last May we took a boy to raise. He is only 13 years old, and was in the habit of chewing obacco, and had been for four or five years. We shamed him about it, and I told him that, if he would quit its use, Mr. Root would give him a smoker, and that we would give him a colony of bees, also a nice suit of clothes at Christmas. At first he thought he could not do without tobacco; and his mother, a widow, told me I would have to let him use it, as she thought he could not quit. Finally, in August last, he made up his mind to quit, and has not tasted it since, so I gave him the bees and a suit of clothes; and now as he saw me writing to you he reminded me about the smoker. If you think he is entitled to it you can send it. His name is Daniel Bissell. If he uses tobacco again I will see that the smoker is paid for. R. J. MATHEWS.
Rosedale, Miss., Feb. 15.

ALLIANCE, GRANGE, LEAGUE



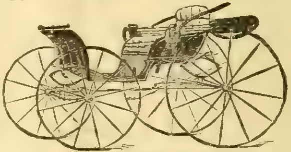
"A" Grade $40.

F.M.B.A. Members and thousands of other good men and true, patronized us so liberally last year that we were compelled to buy, build and increase our facilities until now we now have one of the **LARGEST CARRIAGE and HARNESS FACTORIES IN THE WORLD.** The Alliance Factory runs when others shut down or break up.



"A" Grade $46.

Send for our handsome, illustrated Catalogue, showing over 100 different styles of Vehicles and Harness, and you will understand why all this phenomenal success and immense business. We actually give more for less money than any Buggy or Harness factory in the world. All goods hand made and warranted for years. Get our prices and compare them with your dealers.



"A" Grade $72.50.

ALLIANCE CARRIAGE CO. CINCINNATI, O.
North Court St., opp. the Court House.

☞In responding to this advertisement mention GLEANINGS.

AND DON'T YOU FORGET IT

I TELL you what, Jones, **Levering Bros.** sell the best goods and at the lowest price of any one I've struck yet. The largest and best equipped

Bee - Hive Factory

in the West. The Dovetailed Hive and New Hoffman self-spacing Frame a specialty. Every thing used by practical bee-keepers at wholesale and retail. Send for their free Illustrated Price List, and save money. Supply Dealers, send for their Wholesale List. Address

LEVERING BROS.,
6tfdb **Wiota, Cass Co., Iowa.**

Please mention this paper.

FOR SALE. For May delivery, Italian and Hybrid Bees in light shipping-cases, 8 L. frames. Price, for Italians, $4.00; hybrids, $3.00 each, free on board cars here. I guarantee safe delivery. **A. W. GARDNER,**
5-8db **Centerville, Mich.**

☞In responding to this advertisement mention GLEANINGS.

PERSONS WANTING

APIARIAN SUPPLIES

Would do well to send to W. E. CLARK, Oriskany, Oneida Co., N. Y. Send for illustrated price list. Dealers should send for Dealers' list for Smokers.

☞In responding to this advertisement mention GLEANINGS.

FOR SALE. The apiary of Solomon Vrooman, deceased, consisting of 107 colonies, and all necessary appliances. For many years the apiary of John H. Martin, Hartford, Washington Co., N. Y.
Address F. S. ELDREDGE, No. Adams,
No. 11 No. Church St. Berkshire Co., Mass.
6-78d Please mention this paper.

FOR SALE.—WARRANTED PURE-BRED PUNIC QUEENS. No others near. Queens delivered in June. Price $2.00 each; one-fourth off on all orders with cash before April 15. Safe arrival guaranteed. Alfalfa seed by mail, 35c per lb.
FRANK H. HOWARD, Box 55, Garden City, Kansas.
6-7d

RED CAP and BLACK MINORCA EGGS FOR HATCHING, FOR SALE BY
6tfdb **E. P. Aldridge, Franklin, Ohio.**

SUPPLIES. Langstroth Bee-hives, and every thing needed in the bee yard; 30-page catalogue free. "**BUSY BEES,**" a book telling how to manage them, 10 cents in stamps. **WALTER S. POUDER,** 5-12db
175 E. WALNUT ST., INDIANAPOLIS, IND.

☞In responding to this advertisement mention GLEANINGS.

BEESWAX!

Foreign and domestic. Crude and refined.
A stock constantly on hand.
Write for prices, stating quantity wanted.

ECKERMANN & WILL, Syracuse, N. Y.

☞In responding to this advertisement mention GLEANINGS.

LOOK! HONEY-COMB FOUNDATION! LOOK!

FRIENDS, if you need foundation it will pay you to purchase of us, as we have again purchased the very latest improved mills, and shall send none but the best foundation. We will allow 15% discount until April 10th on all orders. Send stamp for free samples. Address C. W. PHELPS & CO.,
6-11db 74 PETITT ST., BINGHAMTON, N. Y.

☞In responding to this advertisement mention GLEANINGS.

FOR SALE.

20 Acres Land in Berkley Co., W. Va., 5 Miles West of Martinsburg, County Seat of Berkley.

The following varieties of fruit upon it in full bearing are, 75 apple-trees, 130 grapevines, 20 cherry-trees. Buildings in good and substantial condition. Dwelling-house, smoke-house, corn-crib, stable, and spring-house, with a never-failing spring of pure water. Good location for bees or queen-rearing. Price $500.00. Address

WILL THATCHER,
6-7d **Martinsburg, Berkley Co., W. Va.**

Please mention this paper.

---

150 STRAWBERRY-PLANTS,

Six choice varieties by mail, prepaid for **$1.00. The Secrets of Success in the Growing of Small Fruits,** and catalogue of varieties describing above collection **Free** by mail.
6-7d I. A. WOOLL, Elsie, Mich.

Please mention this paper.

MINNESOTA AHEAD, WHY?

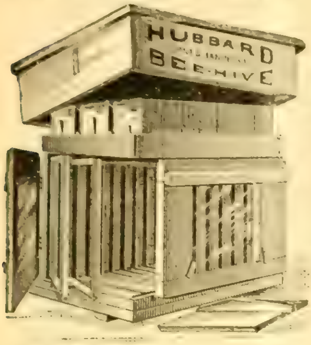
Because in consequence of her pine forests lumber is cheap. That's the reason Erkel sells hives cheaper than any one else in America. Only think, single-story hives from 35c up; two-story hives from 70c up. Other supplies cheap. Send for catalogue.
6tfdb **F. C. ERKEL, Le Sueur, Minn.**

Please mention this paper.

SECTIONS.

$2.50 to $3.50 per M. Bee-Hives and Fixtures cheap. **NOVELTY CO.,**
6tfdb **Rock Falls, Illinois.**

HUBBARD BEE HIVE AND SECTION PRESS.

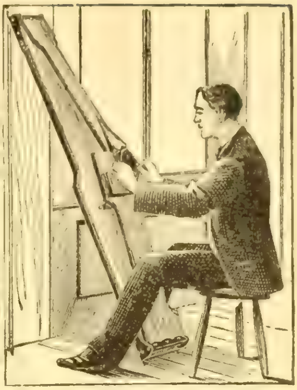


If you want to handle bees **easy** by sitting down to it here is the hive Frames fixed and variable distance combined No wrenching or prying or scraping of combs together. Many thousands in use giving excellent satisfaction

Live Agents make Splendid Profits.

Large Circular of 20 pages free

This **SECTION PRESS** (Pat'd is sold at **$2.50** by the leading supply dealers Ask them for it or send to me A boy can put together 800 to 1000 sections an hour and have them **true.** Bend section around, put in press give a little push —'tis done Will last a life-time and is bound to please you



Send for my Circular about Hive, Press Foundation Fastener, Sections, Foundation Italian Queens, Extractors, Veils, Honey Crates and Cases, &c &c It will interest you Or send **15 cents** for Practical Book for Beginners—**"First Principles in Bee Culture."** 11th thousand just issued

G. K. HUBBARD, 277 Harrison St., Fort Wayne, Ind.

3 10 1b ☞In responding to this advertisement mention GLEANINGS.

HEADQUARTERS FOR ALBINO AND ITALIAN QUEENS ANA BEES FOR 1892.

We never had such a large stock of superior queens and bees as we have at present, and shall do our utmost to give satisfaction Also manufacturers and dealers in Bee-Hives, Sections, Comb Foundation, Novice's Honey-Extractor, and all apiarian supplies. Address **S. VALENTINE,**
5-7d **Hagerstown, Wash. Co., Md.**

Please mention this paper.

LONE STAR APIARY. ITALIAN QUEENS. Untested, but warranted in April, May, June, July, $1 each; per ½ doz. $5; per doz. $8. Tested after May 1, $1.50; per doz., $15.00. Money orders payable at Ft. Worth, Tex. Book orders now. 5-7d
W. A. CARTMELL, Crowley, Tex.

$5 FIVE DOLLARS $5

or less, invested in BULBS, and SMALL FRUITS, will give you weeks of pleasure. Roses, Carnations, Lilies, Gladiolii, Tuberoses, Fine French Cannas, Small Fruits, etc.
5-7-9d **THEODORE JENNINGS,**
P. O. Box 69. Port Chester, N. Y.

Please mention this paper.

CANADA BEE-KEEPERS

Will save money by purchasing supplies from T. Phillips & Co., Orillia, Ontario, who manufacture all styles of Hives, Sections, Frames, Foundation, Extractors, and Smokers. Also many new things not handled by other dealers. Send for catalogue and samples of foundation, free.

T. PHILLIPS & CO.,
3-5d *ORILLIA, ONTARIO, CAN.*

Please mention this paper.

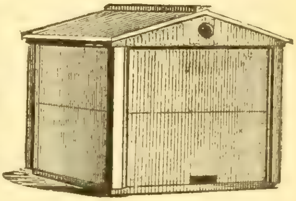
A POULTRY BOOK Called "The Chicken Business, and How to Make it Pay." Tells all about it. Finely illustrated, practical, and original. Price 50 cents, postpaid. An illustrated circular free, giving particulars about the book, and prices of pure-bred fowls and eggs for sale by the author. 4tfdb

H. B. GEER, Nashville, Tenn.

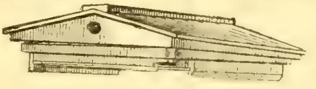
☞In responding to this advertisement mention GLEANINGS.

WANTED.—To send you my catalogue of Queens, Bees, and Supplies, cheap. 4tfdb
CHAS. H. THIES, Steeleville, Ill.

Great Crash in Prices!



From 10 to 25 ﹪ discount from former prices. My 40-page catalogue for 1892 gives reasons. I offer a new-style chaff hive at one-half the cost of other styles, and just as good. This hive can be taken apart almost instantly,



and packed up in small space. It can be used on any hive (see cut). Don't fail to get my 32d annual price list. I mean business, and am bound to sell as good as the best, and at equally low prices.

Address *WM. W. CARY,*
6tfdb *COLERAINE, MASS.*

Please mention this paper.

FRIENDS, LISTEN.

Jennie Atchley has lately bought a lot of black and hybrid bees, and will sell you same by the pound, at $1.50; five or more pounds, $1.25. Queens out of same, 30 and 50c each. Safe arrival guaranteed. Express on a pound to St. Louis, 15 cts, I can not give rates farther.

JENNIE ATCHLEY,
6-7d **Floyd, Hunt Co., Texas.**

Please mention this paper.

I DO NOT ADVERTISE

a specialty, but every thing found in APIARY. Beeswax wanted. **C. E. LUKENS,**
6-7d **19 N. 2d St., Philadelphia, Pa.**

VIOLINS GUITARS MANDOLINS
MURRAY & HEISS. CLEVELAND · OHIO ·
MUSICAL GOODS OF ALL KINDS.
CATALOGUE FREE

☞In responding to this advertisement mention GLEANINGS.

Maple Syrup For Sale in 1-Gallon Cans.

1 can, $1.10; 5, $5.00; 10, $9.50; 20 or more, 90 cts. each, boxed and delivered, F. O. B. Satisfaction guaranteed. F. W. DEAN, New Milford, Pa. 6-7d

ALWAYS
ON
TOP

Our strain of ITALIANS have reached the top. They are HUMMERS when you want bees for honey. Queens bred for business. Make arrangements to order now, to be delivered when wanted.

BEE SUPPLIES AT WHOLESALE AND RETAIL.

For further information about bee-fixtures, send for circular.

PRICES LOW.

JNO. NEBEL & SON.
1tfdb HIGH HILL, MO.

Please mention this paper.

My Catalogue of **APIARIAN SUPPLIES** for 1892 is free; My Pamphlet, "**HOW I PRODUCE COMB HONEY**," by Mail, 5 cts.

GEO. E. HILTON, Fremont, Mich.

Please mention GLEANINGS. 2-13db

ITALIAN QUEENS.

Untested, $1; 6 for $5. Tested, $1.50; 6 for $7. Special terms for large orders.

H. FITZ HART,
6tfdb **Avery, Iberia Parish, La.**

☞Please mention GLEANINGS.

C. W. Phelps & Co's Foundation Factory,

SEE ADVERTISEMENT IN ANOTHER COLUMN.

6-11db 74 Petitt St., Binghamton, N. Y.

BEE-HIVES and Supplies. Send for catalogue free. Address **SAMUEL JONES**, Highland Park College, Des Moines, Iowa. 6-7d

---

BEES BY THE POUND,

ITALIAN QUEENS, ALSO A SELECT LINE OF

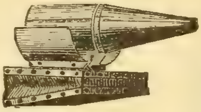
BEE-KEEPERS' SUPPLIES

Send for price List to

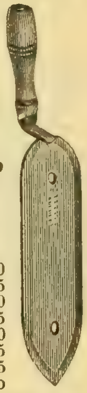
OLIVER FOSTER, Mt. Vernon, Linn Co., Iowa.

6tfdb Please mention this paper

✤BEST ON EARTH✤



ELEVEN YEARS WITHOUT A PARALLEL, AND THE STANDARD IN EVERY CIVILIZED COUNTRY.



Bingham & Hetherington

Patent Uncapping-Knife,

Standard Size.

Bingham's Patent Smokers,

Six Sizes and Prices.

Doctor Smoker,	3½	in.,	postpaid	...$2.00
Conqueror	" 3	"	"	.. 1.75
Large	" 2½	"	"	... 1.50
Extra (wide shield)	2	"	"	... 1.25
Plain (narrow ")	2	"	"	... 1 00
Little Wonder,	1¾	"	"	... 65
Uncapping Knife				..1.15

Sent promptly on receipt of price. To sell again, send for dozen and half-dozen rates.

Milledgeville, Ill., March 8, 1890.

SIRS:—Smokers received to-day, and count correctly. Am ready for orders. If others feel as I do your trade will boom. Truly, F. A. SNELL.

Vermillion, S. Dak., Feb. 17, 1890.

SIRS:—I consider your smokers the best made for any purpose. I have had 15 years' experience with 300 or 400 swarms of bees, and know whereof I speak. Very truly, R. A. MORGAN.

Sarahsville, Ohio, March 12, 1890.

SIRS:—The smoker I have has done good service since 1883. Yours truly, DANIEL BROTHERS.

Send for descriptive circular and testimonials to

7tfdb **BINGHAM & HETHERINGTON, Abronia, Mich.**

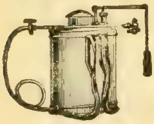
☞In responding to this advertisement mention GLEANINGS.

DOVETAILED HIVES, SIMPLICITY HIVES,

SECTIONS, EXTRACTORS, ETC.
A FULL LINE OF
BEE-KEEPERS' SUPPLIES.
60-PAGE CATALOGUE. 1tfdb

J. M. JENKINS, WETUMPKA, ALABAMA.

☞In responding to this advertisement mention GLEANINGS.



SPRAY YOUR FRUIT TREES AND VINES

Wormy Fruit and Leaf Blight of Apples, Pears, Cherries, Grape and Potato Rot, Plum Curculia prevented by using **EXCELSIOR SPRAYING OUTFITS.**

PERFECT FRUIT ALWAYS SELLS AT GOOD PRICES. Catalogue showing all injurious insects to Fruits mailed free. **Large stock of Fruit Trees, Vines, and Berry Plants at Bottom Prices.** Address **WM. STAHL, Quincy, Ills.**

24-10db

☞In responding to this advertisement mention GLEANINGS.

ROOT'S GOODS FOR THE EAST.

Bee-Keepers of the East should

Bear In Mind that we have established at Syracuse an **Eastern Branch**

where our Bee-keepers' Supplies are kept for sale, and prompt shipment. You can save time and freight by ordering from our Eastern Branch. We have engaged Mr. F. A. Salisbury to take charge of this business, and he will treat you well. He will be pleased to send you a list of goods kept in stock.

Address all orders,

EASTERN BRANCH, F. A. SALISBURY, Agent, Syracuse, N. Y.

J. FORNCROOK & CO.

PATENTED.
JUNE 28 1881

WILL FURNISH YOU THE

"BOSS" ONE-PIECE SECTION

AS CHEAP AS THE CHEAPEST,

And the Best in the Market.

ALSO DOVETAILED HIVES, AND OTHER SUPPLIES.

☞Write for Price List.

WATERTOWN, WIS., Jan. 1, 1892. 7-9-11d

☞In responding to this advertisement mention GLEANINGS.

PREVENT SWARMING

and increase your honey crop, by replacing OLD worn out queens with YOUNG ones before the harvest opens. I breed the Leather colored strain of Italians. Prices for the next 30 days, $10 per doz., $1 each. Purity and safe arrival guaranteed.

A. F. BROWN, Huntington, Fla.
Agent Southern Express Co. 7 8d

Good Queens Cheap.

300 tested Italian queens, raised last season, for sale at $1; $10 per doz. A few hybrids at 25c each. They will be shipped about June 15th to 25th, or later if desired. Have order booked now and send money when you want them. My bees have been ***BRED FOR BUSINESS***, and these are bargains. Nuclei and full colonies at very low rates. Send 25c for sample by mail of

J. A. GREEN, Dayton, Ill.

☞In responding to this advertisement mention GLEANINGS.

Send for Price List to
R. E. HARBAUGH,
Manuf'r and Dealer in Bee-Keepers' Supplies.
Breeder of Italian and Carniolan Bees and Queens, Light and Dark Colored Ferrets.
25th and Clay Sts., - - - *St. Joseph, Mo*

SOLID GOLD.

He sat in his bee-yard at noonday,
He was lonely, glum, and sad;
The bees were buzzing about him,
And he was swearing mad.
Not an ounce of surplus honey,
Not a dime in his pocket for bread,
But the black bees kept on buzzing
About the old man's head.
At last, in despair he shouted,
"I would that I were dead!"
Then came the sound of sweet music,
He stood as in a trance,
The birds sang,
"*Buy the W. V. M. ITALIANS*,
And then of joy you will dance."

Rates: Virgin queens, 40c; untested, $1.00; tested, $2.00; select, $3.00; tested breeding queens, $4.00. Untested queens, ready May 20.

W. V. MOREHOUSE, Lafayette, Ind.
Please mention this paper.

A HONEY-EXTRACTOR FREE.

Send me your name on a postal card for my new catalogue of Italian queens and all kinds of BEE KEEPERS' supplies, and I will tell you how to get a NOVICE EXTRACTOR free. Address WEAVER, 7 8 THE BEE MAN, Warrensburg, Mo

☞In responding to this advertisement mention GLEANINGS.

THE DEAD LINE

IN BEE-KEEPING March and April is at hand. Read

"THE WINTER PROBLEM,"

and keep up with the times. **Price 50 cts.**

G. R. PIERCE, Blairstown, Benton Co., Iowa.

☞In responding to this advertisement mention GLEANINGS.

DR. J. W. CRENSHAW,
Versailles, - Kentucky,

Offers for Sale

Untested Italian Queens at $1.00 each through May and June; after, 75c each. Safe arrival guaranteed. Queens raised only from Imported mother. Drones only from selected and tested mothers.
Also CELERY PLANTS from July to September, at $2.00 per M. 7-18db

I am Pushing Ahead!

And am so far in the lead that I challenge any one to show up superior bees to my best

Five-Banded Golden Italians.

Large, beautiful, gentle, and good honey-gatherers; the results of 10 years' careful breeding. Try them. Satisfaction guaranteed. Queens in May, $1.25 each; 6 for $6. After June 1, $1 each; 6 for $5. For full particulars, send for descriptive circular.

CHAS. D. DUVALL, Spencerville, Md. 7tfdb

☞In responding to this advertisement mention G

Barred Plymouth Rocks.

I breed for fancy only, and pay strict attention to standard requirements. Eggs, $3.00 per setting, two settings for $5.00. After May 10, $2.00 per setting.

MRS. F. P. HISH,
Tower Hill, Ill.

☞In responding to this advertisement mention GLEANINGS.

New Machinery.

We have just put in the latest improved machinery for the manufacturing of bee-keepers' supplies. Dovetailed and cheap L. hives at a bargain. Sections and frames very cheap. A large stock of smokers and foundation. Send for circular.

7-12db **W. H. BRIGHT, Mazeppa, Minn.**

WILD TURKEY CALLER, with instructions, postpaid, 25 cents.

P. B. CLOUSE, Graysville, Tenn.

Foundation, Wholesale and Retail.

If you would like to see how nice foundation can be made, send for free samples. Special prices to dealers on Foundation and Sections, etc.

Free price list of everything needed in the apiary. 6tfdb (Near Detroit.)

M. H. HUNT, Bell Branch, Mich.

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All advertisements intended for this department must not exceed five lines, and you must SAY you want your adv't in this department, or we will not be responsible for errors. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To trade a large lot of Heddon hives, nicely made and good as new; some with combs complete for honey, now or after crop of '92. Write for particulars. Address D. S. HALL,
2tfdb South Cabot, Vt.

WANTED.—To exchange comb foundation for beeswax. C. W. PHELPS & Co.,
6-11db 74 Petitt St., Binghamton, N. Y.

WANTED.—To exchange an imported female English mastiff, a good house dog, for modern improved bee-hives complete, or Cotswold or Shropshire ewes. AMOS GARRETT, Sugartown, Pa. 6d

WANTED.—To exchange a town lot in the thriving city of Leroy, Fla., situated in the heart of the Orange belt of the State, for any thing useful on a farm or apiary. JENNIE ATCHLEY,
6-7d Floyd, Hunt Co., Texas.

WANTED.—To exchange job printing of any kind for black or Italian bees. A. D. ELLINGWOOD,
6-9db White Mountain Apiarist, Groveton, N. H.

WANTED.—To exchange 1 high-arm Singer sewing-machine, good as new, 3 White Plymouth Rock cockerels, Trio White Minorcas, and eggs from White Minorcas, White P. Rocks, Golden Wyandottes, S. C. Brown Leghorns, R. C. Brown Leghorns, and Pekin ducks, for comb foundation, or offers. J. C. PROVINS, Masontown, Fayette Co., Pa.
7-8d

WANTED.—To exchange 43 acres of land, house, barn, well, etc., in basswood regions of Wis.; also 100 colonies of bees, for good horses or offers. Write for particulars.
7d A. L. CROSBY, Orion, Richland Co., Wis.

WANTED.—To exchange 7 volumes of GLEANINGS IN BEE CULTURE, 1879—1885 inclusive, for eggs from pure-bred Light Brahmas. 7d
ARTHUR DARST, Alberta, Meigs Co., Ohio.

TO exchange.—First-class two-story, eight-frame, tin-roof hives, empty or furnished, for Italian queens, cheap honey for spring feeding, P. R. eggs, watch, books, revolver, spy-glass, or offers.
M. FRANK TABER, Salem, O.

WANTED.—To exchange brood-foundation, at 40c per lb., or light for the boxes at 50c per lb., for wax at 30c per lb. B. CHASE,
7tfdb Earlville, Madison Co., N. Y.

WANTED.—To exchange pure Italian queens, three or five banded, or from imported queens, for 1-lb. sections and comb foundation. 7tfdb
MRS. OLIVER COLE, Sherburne, Chenango Co., N. Y.

WANTED.—Man to work in apiary. Send experience, and wages expected. 7d
CHARLES ADAMS, Greeley, Col.

WANTED.—A second-hand cigar-box planer, also 8 or 10 H. P. engine and boiler. Address
7d D. S. HALL, So. Cabot, Vt.

WILL exchange molds for making 1-lb., ½-lb., and 5-oz. square glass honey-jars, which cost $50.00, for Hamburgs, Brown Leghorns, Black Minorcas, or Mastiff or St. Bernard dogs, male or female. 7d
F. C. TYGARD, 2121 Jane St., Pittsburg, Pa.

FOR sale or exchange.—1 Barnes foot-power saw, 3 swarms of bees. L. L. ESENHOWER,
Reading, Berks Co., Pa.

WANTED.—A cigar-box planer, new or second-hand; would like to exchange Given foundation-dies, L. size, press, tank, and dip-boards. 7d
H. E. HARRINGTON, Walden, Vt.

WANTED.—To buy 100 strong colonies of bees in box hives; those located in a Southern State prefered. Also, to exchange worker combs in L. and American frames, extracted honey, and bee-keepers' supplies, for bees. B. WALKER, Capac, Mich.
7tfdb

WANTED.—To exchange for wax or offers, one 6-inch Vandervoort and one 10-inch Root foundation-machine with tanks, etc.
7d W. H. PROCTOR, Fair Haven, Rutland Co., Vt.

WANTED.—To exchange 1 Root foundation-mill, honey-extractor, 15 or 20 bee-hives, double-action revolver; all used but little, for Winchester rifle, music, or offers, or will sell cheap for cash.
7d F. C. FULLER, Montague, Franklin Co., Mass.

Black and Hybrid Queens For Sale.

For the benefit of friends who have black or hybrid queens which they wish to dispose of, we will insert notices free of charge, as below. We do this because there is hardly value enough in these queens to pay for buying them up and keeping them in stock; and yet it is oftentimes quite an accommodation to those who can not afford higher-priced ones.

I have 50 good hybrids and black queens for sale at 25c each, ready for immediate delivery.
6-7d W. H. HEASTMAN, Citra, Marion Co., Florida.

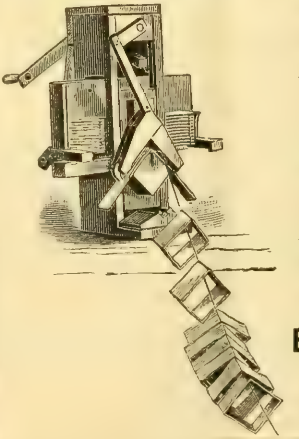
Mismated queens, 35c each, three to one address for $1.00. W. C. GATHRIGHT,
Toccopola, Pontotoc Co., Miss.

A fine mismated five-banded, golden Italian queen, nearly solid yellow; bees, black to four-banded, 40c. Also a few of the same strain that show a few bees with only 2 bands (none less) they are evidently mated with hybrid drones, so they go at 60c. Stamps, ones and twos. S. F. & I. TREGO, Swedona, Ill.

40 young mismated and hybrid queens from an out-apiary will be sold for 35c each after April 20th.
W. H. LAWS, Lavaca, Ark.

PHILO'S AUTOMATIC

SECTION FORMER AND GLUER.



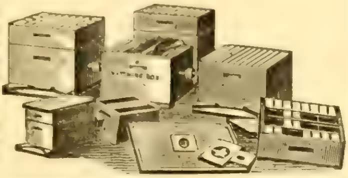
IT DOES BOTH AT THE SAME OPERATION. ALL YOU HAVE TO DO IS TO TURN THE CRANK, AND THE SECTIONS ARE ROLLED OUT BY THE WHOLESALE. ANY CHILD CAN DO IT. PRICE ONLY $3.00. Address

E. W. PHILO,
Halfmoon,
N. Y.

1892 Improve your stock! Get the best! Beautiful yellow Italian Queens from stock bred for business, as well as beauty. Not a displeased customer; and hundreds of flattering testimonials. Will be ready to begin shipping by May 1st. Warranted queen, $1.00; 6 for $4.50. A yellow-to-the-tip Breeder, $2.00. Circular on application.
7tfdb **W. H. LAWS, Lavaca, Ark.**

QUEENS, 15c to $3. Pure ITALIANS $1 to $3. Send for price list. Satisfaction guaranteed. GOLDEN Untested, $1; Tested, $2; Choice Breeders, $3. F. C. MORROW, Wallaceburg, Ark.

Contracted Queen-Restricted Non-Swarming Bee-Hive.



Bee-keepers wishing to use my hive and methods please write for prices on farm right and sample hive. Agents write for terms.

JOHN CONSER, SEDALIA, MO.
Reference First National Bank, Mo.

VANDERVORT
COMB-FOUNDATION MILLS.

Send for samples and reduced price list.
1tfd **JNO. VANDERVORT, Laceyville, Pa.**
Please mention this paper.

SHORT-HORN CALVES

For sale. Registered in purchaser's name and delivered at express office in light crate (from one to six months old) $25.00 each; 20 head of cows and heifers, and 4 young bulls, cheap. For prices and breeding, address 7-8-9d
CALVIN LOVETT, Otsego, Mich.

1892 **ROOT'S Dovetailed Hive** at his prices. Circular free. **1892**
Golden Italian queens, $1.00 each, or 6 for $5.00.
1tfd GEO. W. COOK, Spring Hill, Kan.

F. F. ALDERFER,
HARLEYSVILLE, - MONT. CO., PA.

Breeds the best S. C. W. and B. Leghorn stock and eggs for sale; also Comb Foundation, Italian Bees and Queens. Satisfaction guaranteed. Write him. 7-8d

---

FOR SALE OR EXCHANGE.

One 10-in. Root's mill for brood-foundation, and 1 6-in. mill for thin foundation in good order, and at a bargain, as we do not keep bees now. 7-12db
T. & B. YOUNG,
145 Marquette St., LaSalle, Ill.

FOR SALE. Seventy-five colonies of bees in Simplicity hives. Price $4 a colony.
Address WM. G. GRIFFITHS,
Chew, opp. Sharpneck St., Germantown, Pa.

WANTED.—To exchange my 10th annual price list of apiarian supplies, also pure gold strain of Jersey sweet-potato seed, for your name and address plainly written on a postal card. 7-8
C. M. DIXON, Parrish, Ill.

Illustrated
HOME JOURNAL

3o Quarto pages—**50 cents** a year.

AN Elegant Monthly for the **FAMILY and FIRESIDE.** Printed in the highest style of the art, and embellished with magnificent Engravings. Sample FREE. Agents Wanted.

THOMAS G. NEWMAN & SON,
PUBLISHERS
CHICAGO, ILL.

1892.
HEADQUARTERS IN THE SOUTH
—FOR
BEE-KEEPERS' SUPPLIES.

Dovetailed hives made of Cypress lumber a specialty, at A. I. Root's prices. Special discount to dealers. We are so arranged that we can now give special low freight rates. Early 4-frame nuclei and Italian queens. Satisfaction guaranteed on all transactions. If you need any Bee-Hives, Frames, Sections, Foundation, etc., send for 14th annual catalogue. **P. L. VIALLON M'F'G CO.,**
Bayou Goula, La.

OTTUMWA BEE-HIVE FACTORY.

Bee-keepers, look to your interests. Every thing in the line of bee-supplies constantly on hand. Price list free. **GREGORY BROS. & SON,**
1-12d Ottumwa, Ia. South side.
☞In responding to this advertisement mention GLEANINGS.

Rates REDUCED.

1892. Colonies, Nuclei, and Queens.

Address S. D. McLEAN,
Box 190, Columbia, Tenn.

WRITE For TERMS.

· DO YOU WANT ·

Good, gentle, and prolific bees? Then get an Albino (or white-banded Italian) queen. Catalogue free.
5tfd A. L. KILDOW, Sheffield, Illinois.

IMPORTED QUEENS.

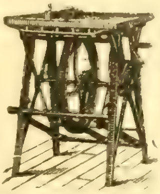
In May and June, each	$2.00
In July and August, each	1.80
In September and October, each	1.60

Money must be sent in advance. Safe arrival guaranteed. Queens that die en route, if returned in the letter, will be replaced by mail, postpaid. No order for less than 8 queens *by express* will be accepted.
CHAS. BIANCONCINI,
1-11d **Bologna, Italy.**
Please mention this paper. 7d

PATENT WIRED COMB FOUNDATION
HAS NO SAG IN BROOD-FRAMES.
THIN FLAT-BOTTOM FOUNDATION
Has No Fish-bone in Surplus Honey.

Being the cleanest is usually worked the quickest of any Foundation made.
J. VAN DEUSEN & SONS,
Sole Manufacturers, 5tfd
Sprout Brook, Montgomery Co., N. Y.
Please mention this paper.

Barnes' Foot-Power Machinery.

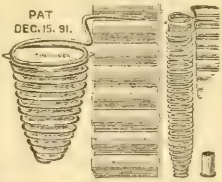


Read what J. I. PARENT, of CHARLTON, N. Y., says—"We cut with one of your Combined Machines last winter 50 chaff hives with 7-inch cap, 100 honey-racks, 500 broad frames, 2,000 honey-boxes, and a great deal of other work. This winter we have doubled the amount of bee-hives, etc., to make, and we expect to do it all with this saw. It will do all you say it will." Catalogue and Price List free. Address W. F. & JOHN BARNES, 545 Ruby St., Rockford, Ill.

When more convenient, orders for Barnes' Foot-Power Machinery may be sent to me. A. I. ROOT.
23tfd

CONTROL YOUR SWARMS!

N. D. WEST'S SPIRAL WIRE QUEEN-CELL PROTECTORS AND CAGES.


PAT DEC. 15. 91.

N. D. West's Spiral Wire Queen-Cell Protectors will do it, and you can RE-QUEEN your apiary during the swarming season. Pronounced the Best by such men as Capt. J. E. Hetherington, Cherry Valley, N.Y.; P. H. Elwood, Starkville, N. Y., and others. Cell-Protectors, $3.00 per 100, or 12 for 60c. by mail. Cages, $5.00 per 100, or 12 for $1.00, by mail. Samples of both, with circular explaining, 25 cts. The cages are used for hatching queens in any hive, and are the Best Bee-Escape in use. Address

N. D. WEST, Middleburgh, Schoharie Co., N. Y.

Please mention this paper.

TAKE NOTICE!

BEFORE placing your orders for SUPPLIES, write for prices on One-Piece Basswood Sections, Bee-Hives, Shipping-Crates, Frames, Foundation, Smokers, etc. PAGE & KEITH,
14tfdb New London, Wis.

Please mention this paper.

J. C. SAYLES,

HARTFORD, WIS.,

MANUFACTURES APIARIAN SUPPLIES OF EVERY DESCRIPTION. CATALOGUE FREE TO ALL. SEND YOUR ADDRESS.

3tfdb Please mention this paper.

Muth's Honey-Extractor.

Square Glass Honey-Jars,
Tin Buckets, Bee-hives.
Honey-Sections, &c., &c.
Perfection Cold-Blast Smokers.

APPLY TO
CHAS. F. MUTH & SON, Cincinnati, O.

Send 10-ct. stamp for "Practical Hints to Bee-keepers."
Please mention this paper.

Bees For Sale.

COLONIES, NUCLEI, AND QUEENS,

at living rates. Send for circular and price list to
C. C. VAUGHN & CO.,
Columbia, Tenn.

In writing to advertisers please mention this paper. 5-10db

---

500 Colonies of Bees Devoted to Queen-Rearing.

Write for prices on large quantities.

TWO MILLION SNOW-WHITE SECTIONS.

Write for prices on large quantities.

Send for our 24-Page Catalogue of Dovetailed Hives, Smokers, Extractors, Etc.

LEAHY M'F'G CO., Higginsville, Missouri.

Please mention this paper. 5tfdb

C. W. Phelps & Co's Foundation Factory.

SEE ADVERTISEMENT IN ANOTHER COLUMN.
74 Petitt St., Binghamton, N. Y.

Bee-Keepers' ✻ Supplies.

We are prepared to furnish bee-keepers with supplies promptly and at lowest rates. Estimates gladly furnished, and correspondence solicited. Our goods are all first-class in quality and workmanship. *Catalogue sent free.* Reference, First National Bank, Sterling, Ill. Address 1-24db

WM. McCUNE & CO.,
Sterling, Illinois.

☞In responding to this advertisement mention Gleanings.

C. W. Phelps & Co's Foundation Factory.

SEE ADVERTISEMENT IN ANOTHER COLUMN.
74 Petitt St., Binghamton, N. Y.

SAVE MONEY.—Send to J. P. H. Brown, Augusta, Georgia, for his price list of supplies. Hives and foundation at wholesale rates. 4tfdb

---

ITALIAN QUEENS FOR SALE.

The finest honey-gatherers in the land. Tested, $1.50 each. Select tested, $2.00 each. Untested, $1.00 each, or $9.00 per doz. Queens ready to ship by April first. I guarantee safe arrival and satisfaction, by mail. Orders booked now and pay when you want queens. **J. W. TAYLOR,**
4tfdb **Ozan, Ark.**

☞In responding to this advertisement mention Gleanings.

BEES

350 Colonies
1,000,000 Sections,
Foundation, &c.
☞Send for price list.
E. T. FLANAGAN,
BELLEVILLE, ILL.

☞In responding to this advertisement mention Gleanings.

Hatch Chickens by Steam.

IMPROVED EXCELSIOR INCUBATOR

Circulars free.

Will do it. Thousands in successful operation. ***Simple, Perfect and Self-Regulating.*** **Lowest-priced first-class Hatcher made.** Guaranteed to hatch a larger percentage of fertile eggs at less cost than any other. Send 6c. for Illus. Catalog. **GEO. H. STAHL, Quincy, Ill.**

☞In responding to this advertisement mention Gleanings.

AUTOMATIC COMB FOUNDATION MILLS.

2-7db —MADE BY—

W. C. PELHAM, Maysville, Kentucky.

Please mention this paper.

EARLY GOLDEN, UNTESTED QUEENS, $1.00. LARGE, FINE, GENTLE, AND BRED for business. Ready about March 20. Dealers send for prices. Fine tested, raised last year, $1.50 to $2.00. A few breeders, Italian or Golden, $3 to $5.

J. B. CASE, Port Orange, Vol. Co., Fla.

Please mention this paper. 3tfdb

Western Bee-Keepers' Supply House

Root's Goods can be had at Des Moines Iowa, at **Root's Prices.** **The largest supply business in the West. Established 1885 Dovetailed Hives, Sections, Foundation, Extractors, Smokers, Veils, Crates, Feeders, Clover Seeds, etc. Imported** Italian Queens. Queens and Bees Sample copy of our Bee Journal, **"The Western Bee-Keeper,"** and **Latest Catalogue** mailed **Free** to Bee-keepers.

JOSEPH NYSEWANDER, DES MOINES, IOWA.

3tfdb

In writing to advertisers please mention this paper. 4tfdb

REMEMBER

THAT IN THE

Pecos Valley

The Fruit Belt

OF

New Mexico,

FARMERS COINED MONEY

during the Summer of '91, and will do so every year.

For instance :

Thomas Stokes raised 11 tons of sorghum (hay) on less than two acres of new ground, which product he sold at $15 a ton—**cash yield over $83 an acre.**

Julian Smith sold **over $300 worth** of garden products **from half an acre** of ground.

W. W. Paul raised 211 bushels of oats on 2 1-5 acres of ground, sold at 70 cents a bushel—**cash yield $67 an acre.**

John W. Poe cut 600 tons of alfalfa from 110 acres; value $15 a ton, $9,000. **Cash yield per acre, $80.**

L. W. Holt raised 11¼ tons of sorghum on 1½ acres, and 450 tons of alfalfa on 90 acres. The alfalfa sold at $15 a ton—**cash yield $112.50 an acre.**

We can give you plenty of similar examples when you come here.

Send for illustrated pamphlets, giving full particulars.

Pecos Irrigation and Improvement Co.,
EDDY, NEW MEXICO.

☞In responding to this advertisement mention GLEANINGS

LOCATION

Is a big *point*, in supplying goods; ours gives you low freight rates. As we sell low, you should have our circular of supplies. 1-18db

I. J. STRINGHAM, 92 BARCLAY ST., N. Y.

Please mention this paper.

PUNICS.

Headquarters for queens of this race, bred and imported by a "*Hallamshire Bee-keeper*," is below.

Prices each: Virgin, $1.50; fertile, untested, $5.00; ditto pure mated, $10.00; ditto selected, $40.00; ditto imported, $50.00. Sent per mail prepaid and guaranteed against loss in transit or introduction. If not approved of *after trial*, all money returned in *full*. Circular free. Address

JOHN HEWITT & CO., Sheffield, Eng.

☞In responding to this advertisement mention GLEANINGS.

DON'T STOP ME ! I am going to send at once to C. W. PHELPS & CO.'S Wholesale and Retail Foundation Factory, Binghamton, N. Y., for a free sample of Honey Comb Foundation, and buy all of my Bee Supplies of them. Its THE place.

Beautiful ! Gentle ! Prolific !

The Five - Banded Golden Italian Bees.

Send 5c for sample of bees and be convinced. Catalogue free. One queen, June or July, $1.00; six, $5.00.

J. F. MICHAEL,
8-13db ***GERMAN, DARKE CO., OHIO.***

Please mention this paper.

BEE-HIVES, Dovetailed or Otherwise.

All Kinds of Bee Supplies.

Write for free catalogue. **W. H. PUTNAM,**
8-13db **River Falls, Pierce Co., Wis.**

☞In responding to this advertisement mention GLEANINGS.

TESTED ITALIAN QUEENS, $1.00 EACH. Untested, 65c; select tested, $1.25; one 2-frame nucleus, tested queen, $2.00; one 2-frame nucleus, untested, $1.50. **STEWART BROS.,**
8-12db **Sparta, White Co., Tenn.**

LEATHER-COLORED ITALIAN QUEENS.

One untested, $1.00; six, $5.50; twelve, $10.00; one tested, $1.50; six, $8.00; twelve, $15.00; selected for breeding *early*, each, $2.50; one year old tested, *in June only*, $1.25; six, $7.00; twelve, $13.00. Two-year-old queens, each, 50c. Descriptive catalogue mailed free on application.

8-13db **A. E. MANUM, Bristol, Vt.**

☞In responding to this advertisement mention GLEANINGS.

I DO NOT ADVERTISE

a specialty, but every thing found in APIARY. Beeswax wanted. **C. E. LUKENS,**
6-7d **19 N. 2d St., Philadelphia, Pa.**

SPEAK QUICK!

30 Colonies of black bees on Quinby suspended frames, for sale, in light shipping-boxes. These bees have plenty of brood. No foul brood here. Price $3.25 per colony; 10 or more, $3.00.

CHAS. STEWART,
8-9d **Sammonsville, Fulton Co., N. Y.**

☞In responding to this advertisement mention GLEANINGS.

IT PAYS

To order the best made goods. For Fine Sections, Foundation, Perforated Zinc, Queen Excluders, and the best hive for comb honey now before the public, order of Dr. Tinker. PRICES GREATLY REDUCED. Address for catalogue

DR. G. L. TINKER, New Philadelphia, O.

Please mention this paper. 8-11db

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CONVENTION NOTICES.

The first annual meeting of the Connecticut Bee-keepers' Association will be held at Hartford, May 12, commencing at 10:30 A.M. All interested are invited. Mrs. W. E. Riley, Sec. Waterbury, Ct.

CIRCULARS RECEIVED.

We have recently received from the following parties their price lists of apiarian supplies in general:

O. Moseley, Peru, Ind.
W. E. Smith, Kenton, O.
A. E. Manum, Bristol, Vt.
W. H. Laws, Lavaca, Ark.
J. J. Bradner, Marion, Ind.
A. L. Lindley, Jordan, Ind.
Gus. Dittmer, Augusta, Wis.
Oliver Foster, Mt. Vernon, Ia.
J. R. Barnhard, Ottawa, Kan.
L. L. Alspaugh, Auburn, Neb.
T. Phillips & Co., Orillia, Ont.
N. D. West, Middleburgh, N. Y.
C. F. Muth & Son, Cincinnati, O.
W. H. Putnam, River Falls, Wis.
Luther & Horton, Redlands, Cal.
Mrs. Oliver Cole, Sherburne, N. Y.
B. Davidson, Uxbridge, Ont., Can.
Gregory Bros. & Son, Ottumwa, Ia.
F. W. Jones, Bedford, Quebec, Can.
G. H. Kirkpatrick, Union City, Ind.
G. D. Black & Co., Independence, Ia.
Myers Brothers, Stratford, Ont., Can.
J. H. M. Cook, 78 Barclay St., New York.
Buckeye Bee-supply Co., New Carlisle, O.
F. A. Lockhart & Co., Lake George, N. Y.
Burdsal Apiary and Supply Co., Lebanon, O.
Leahy Manufacturing Co., Higginsville, Mo.
C. E. Lukens, 19 North Second St., Philadelphia.

SPECIAL NOTICES.

CONCORD GRAPEVINES, FOR SHADING BEE-HIVES.

Strong, well-rooted, three-year-old plants, 10 cents each; 10 for 85c; $7.50 per 100.

DECLINE IN POTATOES.

Until further notice we will furnish Early Puritan potatoes, Lee's Favorite, or Monroe Seedling, at 75 cts. per bushel, or $2.00 per barrel of 11 pecks.

SLICED SLOTTED SEPARATORS.

You will notice these slotted separators, which were shown in our last issue, are priced in our March 1st catalogue at 60 cts. per 100; $5.00 per 1000. We have a few from one lot we made that molded a little in drying, which we will sell at half price. There are only two or three thousand of them.

COMB FOUNDATION.

We should be pleased to send free samples of our foundation on application to prove that we are not behind any of our competitors in the quality of the goods we send out, both in color and workmanship. Competent judges have acknowledged ours equal to Dadant's, which is the standard.

SAWED SEPARATORS.

The ordinary sliced wood separators have a tendency to curl considerably, and this is about the only real objection to them. As some prefer not to use them on account of this, we have been making sawed wood separators, about 14 to the inch, very straight and smooth, 3½ x 17 to 18 inches long, at 60 cts. per 100; $5.00 per 1000. We have not made any sawed slotted separators.

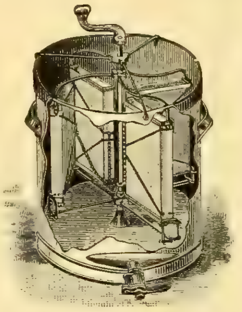
ALSIKE CLOVER SEED.

It is not too late to sow alsike, and we still have a good supply of nice clean seed. As the season is getting late and the market a little easier, we will make the price for the next 30 days as follows: 2 bushels, $18.00; 1 bushel, $9.50; ½ bushel, $4.90; 1 peck, $2.50; 1 lb., 20 cts.; by mail, 30 cts.

BUSINESS AT THIS DATE.

We have our usual supply of orders for this season of the year, and, if any thing, they are larger. As we were prepared with a stock of all standard goods to draw on in addition to what we make from day to day, we are able to rush the goods off within a few days after receiving the orders. The invoice you receive from us shows the record on the upper left-hand corner, telling just how long the order is in our hands before being shipped. We aim to make the time covered by this record as short as possible. We hope to serve you with the same promptness through the season that we have been able to do so far.

STANLEY AUTOMATIC REVERSING HONEY-EXTRACTOR.



As announced in last number of Gleanings, we have leased from G. W. Stanley the right to make his automatic extractor, and we bought from E. R. Newcomb his stock of materials and machines unsold. This stock consists of about twenty-five machines, two and four frame. To work it off quick, and give us a chance to put out machines of our own make, we offer these machines as long as they last, at one-fourth off old prices. We will sell the two-frame machines as they are for $9.00; the 4-frame for $15.00. They are crated ready for shipment, with crank direct on the center-shaft. We will attach our new horizontal gear, as shown on page 14 of our catalogue, for $3.00 each extra.

THE PLANT BUSINESS AT THIS DATE.

During the fore part of April we had several days of very nice weather—so much so that the gardener, and even the plants too, were about to be deluded into thinking that frost and snow for the season were at an end. Since then, however, the weather has been cold, and the ground has been frozen up so it would almost bear up a horse in the forenoon. Now, we are not complaining at this sort of thing, mind you, for it has been the means of keeping the fruit back so there is great probability that it will escape uninjured. But at the same time the weather has not been favorable for sending out strawberries and other kinds of plants. While I write, the frost has let up, but it is snowing. Just as soon as this is over we expect to rush off every thing promptly. Even the cold-frame cabbages that have been frozen again and again for the last half of the winter could hardly stand the cutting north winds. What few we had in the open ground were pretty much used up except the small central leaf. The prospect is, therefore, that the one who had his stuff well protected, or had good strong plants that could withstand the freezing and cutting winds, will get a big price for what he has to sell.

TWO NEW BOOKS—HENS AND "RATS."

The *Rural New-Yorker* sends us two very pretty little industrial manuals. The first is entitled "The Business Hen." It was written by H. W. Collingwood, managing editor of the *Rural New-Yorker*, with special articles by more than a dozen of the prominent authorities on poultry. The price is 75 cts., in neat cloth binding; paper, 40 cts. The other book is on "rats,"—how to rid buildings and farms of rats and other pests of like character. The book is by "Picket." It is written in one of his happiest veins, and it is very interesting reading aside from its valuable teachings. In fact, it seems to cover about every plan known for destroying, driving away, or fencing out these fearful pests. I have often said it is a disgrace to any neighborhood or any community to have rats around doing damage, and I say so still. The rat-book is only 20 cts. For either of them send to the Rural Publishing Co., New York; or, if more convenient, you can get the "rat-book" of us for 18 cts.; postpaid by mail, 20.

ONE-PIECE SECTIONS.

We are now making one-piece sections at the rate of a million a month. In the five months from Aug. 1st to Jan. 1st we made about one and three-quarter millions; in January and February, one and one-quarter millions; and since the first of March we have been turning them out at the rate of a million a month. We now have in stock about one and a half millions of all widths of the $4\frac{1}{4}$ inch section from $1\frac{1}{2}$ inches up to 2 inches. We have also enough dry lumber in our yard to make about three million more. By the time this is worked up the lumber we have contracted, cut the past winter, will be ready to begin on, and this will make six or eight million more. The quality of the sections is superior to any we ever sent out in former years, and, we believe, equal to any made, and superior to most makes. We contracted to supply one large dealer at a higher price than he was offered other good sections for, because he decided that ours would please his customers enough better to pay the difference in price. We are also making lower prices in large lots to dealers than we have been able to do heretofore. We mention all these things to show you how well prepared we are to serve you. Last year, and the year before, our supply of lumber suitable for sections was insufficient, and, as a consequence, to fill orders at all we were compelled to send out some that were rather inferior for first grade. To many of our friends who received these goods we have allowed a rebate, and to others who mentioned it in their orders we have sent an extra supply of the choice sections we are now turning out. If there are any who have not yet had satisfaction we want to hear from you so that we may have an opportunity to give you satisfaction, and to give you sections that can not be surpassed by any manufacturer.

Kind Words From Our Customers.

I don't see how one who has had a taste of GLEANINGS can expect to get a better feast. It's every thing to me. Gardening and Home talk and all are so social it seems as if I had you by the arm looking over my fruits, etc. Long may you live to cheer us, especially by the welcome address of the word "friend." God bless you. E. P. CHURCHILL.

Hallowell, Maine.

I just unpacked the goods I received from you, and am more than pleased with the same. They arrived in the best possible condition, and give good satisfaction for the future. The workmanship of the hives is the finest I ever saw. My neighbors say they never saw wood so well made and accurate, as it is worked by automatic machinery. Your manner of packing is excellent, and answers well for long distances. The lot of medium foundation is first quality in all respects. The freight on these goods was very low. The duty was rather high. As long as I receive goods like these you can reckon on me as a customer, though it is as far as 600 miles from you. JOS. BEAUDRY.

St. Marc, Can., Feb. 7.

PROMPT FILLING OF ORDERS; THE KIND OF ADVERTISING THAT PAYS.

I got two queens from you last summer, and they were fine ones. They were safely introduced. I like the Benton cage. I have bought quite a good many queens, but yours came the quickest of any I have had yet. I did not have to go to the office five or six times, as I have had to do before, for I had them in a few days. I shall know where to get them after this. FRANCIS ORTT.

Darling Road, O. N. T.

[Knowing, as we do, that, when a customer orders a queen, he wants it at once or his colony will suffer, we bend every energy to send all queens by return mail. How this is appreciated, many letters at hand testify.]

HONEY COLUMN.

CITY MARKETS.

MINNEAPOLIS.—*Honey.*—The honey-market is declining considerably. The demand is dropping off, and fancy white honey is now being sold for 16c; choice, 14; dark, 8@12, according to the quality.

Mar. 28. J. A. SHEA & CO.,
14 & 16 Hennepin Ave., Minneapolis, Minn.

ALBANY.—*Honey.*—There is quite a large stock of comb honey on the market yet, and but very little demand. Extracted about all cleared out. There is no established price on comb honey; it sells at 6@10. CHAS. MCCULLOCH & CO.,
Apr. 8. Albany, N. Y.

CINCINNATI.—*Honey.*—There is a slow demand for comb honey, with a good supply on the market. Prices are nominal, at 12@15 in the jobbing way. *Beeswax* is in good demand, at 25@27, for good to choice yellow on arrival. CHAS. F. MUTH,
Apr. 11. Cincinnati, Ohio.

CHICAGO.—*Honey.* Honey-market now quiet. Sales of comb made in a small way; there is very little fine comb on sale, with prices of 15c for best, to 16 for a fancy article. Extracted in steady demand, with stock very light. *Beeswax*, 27 for yellow.

R. A. BURNETT,
Apr. 7. 161 So. Water St., Chicago, Ill.

BOSTON.—*Honey.*—We quote you our honey-market as being well supplied, fair demand. One-pound combs selling at 13@15; no 2-lbs. on hand. Extracted honey, 7@7½. *Beeswax*, none.

Apr. 8. BLAKE & RIPLEY,
Boston, Mass.

NEW YORK.—*Honey.*—Not much change in honey-market since last issue. There is a little demand for fancy 1-lb. sections, only fancy; but the market seems to be pretty well cleaned up of the above grade of goods. We quote the following: Fancy 1-lb., 12; 2-lb., 11; fair, 1-lb., 9; 2-lb., 8; buckwheat, 1-lb., 8; 2-lb., 7. Extracted, 6½@7, for clover; 5@5½ for buckwheat; southern, from 65@75c per gal. *Beeswax*, 27@29.

Apr. 8. CHAS. ISRAEL & BRO.,
110 Hudson St., New York.

KANSAS CITY.—*Honey.*—Demand poor, with a large supply of comb. We quote: Comb, 1-lb., fancy, 12@13; dark, 8@9. Extracted, white, 7; dark, 5@6. *Beeswax*, none on the market.

Mar. 21. HAMBLIN & BEARSS,
514 Walnut St., Kansas City, Mo.

SAINT LOUIS. *Honey.* Inquiries for strained were frequent, and business more satisfactory. No quotable change in values. *Beeswax*, prime, 27½.

Apr. 8. D. G. TUTT GRO. CO.,
St. Louis, Mo.

KANSAS CITY. *Honey.* The demand for both comb and extracted continues light. We quote:
1-lb. comb, No. 1, white, 13@14; No. 2, white, 10@12; No. 1, amber, 12@13; No. 2, amber, 8@10. Extracted, white, 6@7; amber and dark, 5@6. *Beeswax*, 22@26.

Apr. 9. CLEMONS, MASON & CO.,
Kansas City, Mo.

DETROIT.—*Honey.*—Comb honey is dull and selling very slowly at 11@12½. Not much on the market. Extracted, 7@8. *Beeswax*, in fair demand, 27@28.

Apr. 8. M. H. HUNT,
Bell Branch, Mich.

FOR SALE OR EXCHANGE.

One 10-in. Root's mill for brood-foundation, and 1 6-in. mill for thin foundation in good order, and at a bargain, as we do not keep bees now. 7-12db

T. & B. YOUNG,
145 Marquette St., LaSalle, Ill.

☞In responding to this advertisement mention GLEANINGS.

THE Bee-Keepers' REVIEW

FOR 1892 AND A FINE, TESTED, ITALIAN QUEEN, OF LAST YEAR'S REARING, FOR $1.75. EITHER ALONE, $1.00. FOR $2.00, THE REVIEW, THE QUEEN AND THE 50 CT. BOOK, "ADVANCED BEE CULTURE," WILL BE SENT. W. Z. HUTCHINSON, FLINT. MICH.

P. S.—If not acquainted with the REVIEW, send ten cents for three late but different issues.

SPECIAL MATED

queens reared under the swarming impulse in our Texas apiary, and mated to very yellow drones. Queens and drones from two of the best queens in Texas. All queens warranted purely mated. One queen, Apr., $1.25; 6 for $6.00. May, one queen, $1.10; 6 for $5.50. Our **5-Banded Italians** are the best workers, most gentle and beautiful bees. Safe arrival and entire **Satisfaction Guaranteed**, circular free. S. F. & I. TREGO, Swedona, Ill.

In writing to advertisers please mention this paper.

BEE-HIVES, SECTIONS, ETC.

We make the best goods and sell them cheap.
Our Sections are far the best on the market.
Our Works turn out the most goods of any factory in the world.
Our goods are known as the best throughout the United States and Europe.
Write for free, illustrated catalogue and price list.

G. B. LEWIS CO., WATERTOWN, WIS.

Please mention this paper. 1tfdb

My 654 Colonies of Italians

Are wintering well, and, as usual, I will sell a limited number of them to reduce stock to the required number. Each hive shipped to my customers will contain a full prosperous colony of Italian bees, with a last year's tested queen, on eight Hoffman frames of brood and honey. As my main object in handling bees is honey, we raise all our queens in full colonies from cells built under the swarming impulse, using the choicest and most profitable stock to breed from.

Safe arrival guaranteed in May and first half of June. For terms please address

3-8db **JULIUS HOFFMAN,**
CANAJOHARIE, N. Y.

☞In responding to this advertisement mention GLEANINGS

CARNIOLAN BEES AND QUEENS. They beat them all. Never have dysentery. All queens reared from select imported mothers. Untested, 50c; 12 for $5.00. Tested, $1.00; 12 for $10.00. Select tested, $1.50. Descriptive circular free. **A. L. LINDLEY, Jordan, Ind.**
8-13db

DOVETAILED HIVES AND ITALIAN QUEENS.

Send for price list of Italian Queens, Drones, Hives, Smokers, Foundation, etc. Finest breeding queen, after March 1, $4.00. Tested, $2.00; 3 for $5.00. Untested, in April, $1.00; 6 for $5.00, or $9.00 per dozen by mail. Safe arrival guaranteed. Orders for Queens booked for 20 days or more, 5 per cent discount. Make money orders payable at Clifton.
3tfdb **COLWICK & COLWICK, NORSE, BOSQUE CO., TEXAS.**

☞In responding to this advertisement mention GLEANINGS.

BEE SUPPLIES RETAIL —AND— WHOLESALE.

Everything used in the **Apiary.** Greatest variety and **largest** stock in the West. New catalog, **54** illustrated pages, free to bee-keepers. **E. KRETCHMER, RED OAK, IOWA.**

In writing advertisers please mention this paper.

ELMER HUTCHINSON

Has moved to VASSAR, TUSCOLA CO., MICH. He can furnish untested queens in April and May, raised from one of his Golden Italian 5-banded queens, that took FIRST PREMIUM at the Detroit Exposition the last two years, for $1.15 each, or 6 for $5.00. Orders will be filled for me in April and May by a queen-breeder in the South, who has one of my best breeding queens. Orders promptly filled and safe arrival guaranteed. Make money orders payable at Vassar. 7-10db

POSITIVELY

By return mail, beautiful young warranted Italian queens, at $1.00 each. Tested, $1.50. A select tested yellow-to-the-tip breeder, $2.00. Satisfaction guaranteed. **W. H. LAWS, Lavaca, Ark.**
8tfdb

ITALIAN QUEENS.

Queens reared and tested in the fall of '91, $1.50 each. Safe arrival guaranteed.

Misses S. & M. BARNES, Piketon, Ohio. 7-8-9d

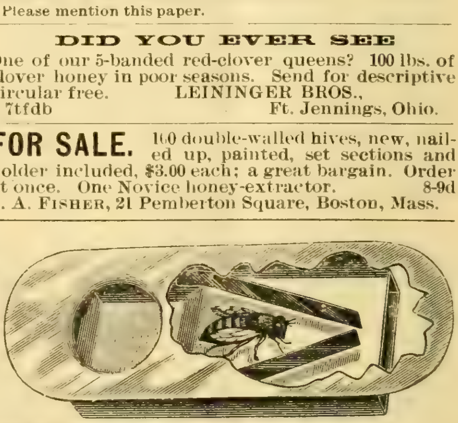
Please mention this paper.

DID YOU EVER SEE

One of our 5-banded red-clover queens? 100 lbs. of clover honey in poor seasons. Send for descriptive circular free. LEININGER BROS.,
7tfdb Ft. Jennings, Ohio.

FOR SALE. 100 double-walled hives, new, nailed up, painted, set sections and holder included, $3.00 each; a great bargain. Order at once. One Novice honey-extractor. 8-9d
S. A. FISHER, 21 Pemberton Square, Boston, Mass.

Porter's Spring Bee-Escape.



We guarantee it to be the best escape known, and far superior to all others. If, on trial of from one to a dozen, you do not find them so, or if they do not prove satisfactory in every way, return them by mail within 90 days after receipt, and we will refund your money.

PRICES:—Each, by mail, postpaid, with full directions, 20c; per dozen, $2.25. Send for circular and testimonials. Supply dealers, send for wholesale prices.

10tfdb *R. & E. C. PORTER, LEWISTOWN, ILL.*

☞In responding to this advertisement mention GLEANINGS

GLEANINGS IN BEE CULTURE
A Journal Devoted to Bees and Honey and Home Interests.
Illustrated Semi-Monthly
Published by A. I. Root.
$1.00 per Year Medina Ohio

Vol. XX. APRIL 15, 1892. No. 8.

STRAY STRAWS

FROM DR. C. C. MILLER.

Bees come out of cellar to-day. April 7.

How's electricity? Is it a success for wiring?

Onion - plants by mail! Well, I never! What next?

D. A. Jones's name is again at the masthead of the *C. B. J.* Long may it stay there!

I got a letter from Medina written by a phonograph. I could read it as easy as any letter.

Slang is something I don't use very often; but you will pardon me for saying that the Daisy foundation-fastener is a *daisy*.

California is a great place for all grains and fruits; and if that on page 242 is a fair sample, they raise the best quality of "straw" there.

The *American Bee-keeper* is doing missionary work by sending free copies of an article from *Harper's Weekly* on "better country roads." A good move.

Prevention of after-swarms is thus secured by T. Heiss (*A. B. J.*): Next day after swarming, run in a virgin queen between the combs and she'll destroy all cells.

Now that Larrabee has got out of his shell, let's be sociable with him. I think he told me that only one man had responded to his request for subjects proper for experiment.

Rev. W. F. Clarke has reduced "the bad five" to the "big four," but he doesn't say which one of the five has been expelled. He talks real cross in the *C. B. J.* about the other four.

You want a postal right away, friend Root, telling how many colonies have wintered. How am I to know without stirring them all up down cellar? They are all quiet there this 6th of April.

Dadant, referring to Gerstung's theory of the queen having periodic intermissions of laying, says that, in constant examinations when engaged in queen-rearing, he has never observed any thing of the kind.

Old sections that are so dry as to break when being made up I have always thought were best treated by being left down cellar for some time. This spring I had to give up, that hot-water treatment is better.

Onion-sets, friend Root says, need right seed, right soil, and all that sort of thing. When I was a boy they just planted them so thick that they couldn't grow big and that was all there was to it. They were good sets, weren't they?

That's a good article by J. A. Buchanan, page 232; but isn't he off when he thinks he sells more honey on account of the adulterated stuff? And why should he wish "to bring to justice these robbers," the adulterators, if they are helping his sales?

I always thought Elwood knew a good deal, but that article on p. 228 shows he knows more than I thought he did. His head is especially level when he says there will never be satisfactory work done in the government apicultural department till it is independent, and in charge of a bee-keeper.

The *American Bee-keeper* sent inquiries to 5000 bee-keepers, asking the number and style of hives. I should have said that one hive in twenty might have been of box persuasion; but they make the startling statement, "We find that a very large majority of the hives used are of the old box style."

Friend Root, if you will look a little closer you'll see that Dr. Kellogg is all right on p. 235. He says that the bee rubs pollen off the flowers, "and carries it home with *him*." You see it's the he-bees he is talking about. Now, you just eat some of the pollen a drone carries home with him, and see if it doesn't poison you.

Too bad my bees can't have a chance to work on the soft maples which are in full bloom since April 1; but it's too windy, cloudy, and rainy to set them out, although the thermometer has been up to 72°. Besides, it's not certain spring is here to stay, so the bees will just have to stay where they are, and roar if they want to.

Those big bee-men of New York are all right and sensible, Mr. California-Man, not to report their big crops. In reply to your other question, the reasons applicable to bee-men *are* used by others. A man who has horses, cows, or any other live stock except bees, secures control of the territory on which they feed, and why shouldn't bee-men?

To cure sections that are so dry as to break when put together, leave them in the box and pour boiling water so it will run down through the whole box. Don't have your tea-kettle too full, and pour in a stream about as large as a goose quill, moving slowly along the three lines of joints where they are to be broken. Don't get any water on the dovetails.

I may say to friend Greiner, that, while I believe young bees as a rule do not work in the field till 16 days old, I *know* that the rule may be broken by circumstances. I made the same experiment as Vogel, using only sealed and hatching brood, and at five days of age workers were carrying in pollen. Now, if tense pressure made such a difference in this case, is it not possible that sufficient pressure often occurs to vary the rule more or less?

The *American Bee-keeper* gave due notice that its name was not to be squeezed down into the compass of three initials; but it takes so much ink to write the whole of it that the editor has begun to drop off the first eight letters himself, and he uses merely initials for the names of other bee-journals. Say, *A. B. K.*, you'll not be so very mad if I initial you after this, will you?

April 4 my bees were howling down cellar, with the thermometer 72° outdoors. Opened up doors at dark, and let a strong wind blow in all night. Bees quiet as mice in the morning, with thermometer in cellar at 50°, and stayed so, although door was open all day, letting in full daylight. Don't tell me bees need no ventilation in cellar. Mind you, they had been confined five months.

Those who are anxious for fear the cells of old combs may become so diminished in diameter that the young bees hatched therefrom may not be of normal size, should remember that the chief part of the deposits left from cocoons are at the bottom of the cell; and as fast as these are left, the cell-walls are lengthened outwardly, from which it will be seen that, at the mouth of the cell, the diameter must always be the same.

THE POSSIBLE AND ACTUAL COST OF COMB HONEY.

P. H. ELWOOD CRITICISES TAYLOR'S AND HILTON'S ESTIMATES, AND DEFENDS DOOLITTLE'S.

Langstroth says it is an easy matter to make calculations on paper almost as flattering as an imaginary tour to the gold-mines of Australia or California. The following calculation of *possible* profits from bee culture, taken from Lydserff's Treatise on Bees, published in England in 1792, is a perfect gem of its kind:

> Suppose a swarm of bees at the first to cost 10s. 6d., and neither they nor the swarms to be taken, but to do well, and swarm once every year bees must be naughty indeed if they dare to do otherwise!—what will be the product for fourteen years, and what the profit if each hive is sold at 10s. 6d.?

Year.	Hives.	Profits. £	s.	d.
1	1	0	0	0
2	2	1	1	0
3	4	2	2	0
* * *	* * * *	*	*	*
14	8192	4300	16	0

> N. B.—Deduct 10s. 6d., what the first hive cost, and the remainder will be clear profit; supposing the second swarms to pay for hives, labor, etc.

The modesty with which this writer, who seems to have had as much faith in his bees as in the doctrine that "figures can not lie," closes his calculation at the end of fourteen years, is truly refreshing. No bee-keeper on such a royal road to wealth could ever find it in his heart to stop under twenty-one years, by which time his stock would have increased to more than a million, when, *probably*, he would be willing to close his bee-business by selling them for over two and three-quarter millions of dollars.

THE COST OF HONEY, BY THE AUTHOR OF "BLESSED BEES."

During the hundred years since the above estimate of *possible* profits, I know of no one who has been able to make a more favorable showing than this except the author of "The Blessed Bees." After very careful figuring and verification of the same, John Allen (page 32) makes one colony increase in fourteen years to over a third of a million. Our Mr. Lydserff takes no account of honey, but derives all of his profits from the increase of stocks. Mr. Allen, on the contrary, gets over three-quarters of his profits from the sale of comb honey, leaving the multiplication of stocks, although more rapid than Mr. S., quite a secondary affair. In this centennial year, two more Michigan men—Messrs. Taylor and Hilton step to the front, and, in carefully prepared estimates on the cost of comb honey, so far lower Allen's cost of producing a pound of comb honey as to make it seem quite unnecessary to mention the profits derived from the increase in stocks. Mr. Hilton does indeed incidentally speak of the sale of full colonies, but he makes light of it, and does not mention it in his itemized account. Taylor says nothing whatever about it, as you might naturally expect from a lawyer and politician. Now, in an estimate of the possible reduction in cost, we can not consent to the omission of the smallest item from the account, even to matches and smokewood. In this respect the account of J. Allen is a model, for in it is found such very small items as paint-brush, putty, cord, postage-stamps, etc. As Mr. Hilton gives his report for twelve years, and mentions thirty-five as the smallest number kept, which must have been the first year, his increase by the comforting and carefully verified figures of the author of "The Blessed Bees" would amount to something over two millions of colonies. But it may be that Mr. H. is not as well posted in this branch of his businesss as the college president already referred to, and that, indeed, he may be a full hundred years behind the times, and, like Mr. Lydserff, but doubles his stock yearly. Now, we can prove by a multitude of common bee-keepers that this increase will bring as much if not more honey than a lighter one. This would give him an increase of only seventy-one thousand six hundred and some odd stocks, and we will generously allow him all over the seventy thousand for winter losses (surely he can not have lost more than a hundred a year). If he has sold this increase as he intimates, undoubtedly you will agree with me in saying that, since we are talking of cost in an apiary run primarily for comb honey, the amount received for them ($350,000) should be applied to reducing the cost of the 36,000 lbs. of comb honey he has produced. This would make his honey cost considerably less than the figures he names—in fact, quite a little less than nothing per pound. You will not fail to observe that, the smaller the yield per colony, the greater the profit per pound, which is directly contrary to the teachings of Mr. Taylor, who stoutly defends the now exploded dogma that, the greater the yield per colony, the greater the profits per pound.

In the foregoing estimate, no allowance is made for cost of hives, as it was supposed the honey casually obtained from the increase would more than pay for them. But as we have called for exactness, it will be best to make a separate item for hives, which, however, will make no difference in the net result unless it shall be to still further reduce the cost of production.

In an article by Mr. Taylor in last Gleanings, just handed me, I notice he anticipates me in my corrections on increase, for he says: "It is possible he (Doolittle) intends these (the extra 150) hives for swarms. If that be so, then of course the apiary should have credit for the swarms, which would make a further very material reduction in the cost of the honey crop."

As we are discussing possibilities, and as Mr. Taylor is dealing so largely in "futures," it may be well to call his attention to the Hasty-Hutchinson method of cheapening production and maintaining the supply in poor seasons. This method is also expected to furnish at all times a fine appearing product for the Proctor Steel* Tower grade of comb honey. This will be honey in name only, glucose in reality, with the "bee-y" taste added, but wholly lacking the fine flavor and delicate aroma of the flowers.

Some of the most extensive packers of adulterated honey in the East have approached us for bee-bread. This gives glucose a twangy taste, and causes many consumers to believe it genuine honey. It is suggested that the author of this bee-glucose scheme add, as an especial attraction to believers in the pollen theory, the statement that it will furnish them a desirable home market for their bee-bread. Lastly, Mr. Taylor, when you embark on your voyage of discovery, do not fail to take with you the Punic bee. It is now surmised that the remarkable success of John Allen was caused by his having privately obtained the very first importation of the Punics. The matter of increase will then not be overlooked, for it will not be a secondary affair, while for every other desirable purpose under heaven these bees are modestly claimed to eclipse all other varieties.

DOOLITTLE'S FIGURES SUSTAINED.

Just now a "friend at my elbow" calls attention to the fact that the editor wished me to take sides with Doolittle, and therefore write, not on the lowest possible cost of producing comb honey as already exemplified by the twelve years' experience of Mr. Hilton, or as to be exemplified by the future experience of Mr. Taylor and others, but write on the actual cost with the average bee-keeper. This cost establishes, or should largely establish, the market price. Of course, I am sorry I got on the wrong side, but I can climb over the fence as others have done.

On reading over what I have already written, I judge I may be wrong in concluding that Mr. Hilton has sold much of that increase. If this be so, and he has them standing around in the woods waiting for customers to buy them, and unworked for the lack of students, or even if he has had them worked on shares where the honey cost him a dollar a pound (see page 57, January 15th GLEANINGS), all of these items will have to appear in the account. If we charge up only the interest on their value, $350,000, and say nothing about that dollar-a-pound honey, we shall run up the cost of production to more than four times Doolittle's figures. There must be some important omission in his account which calls for a yearly profit of 111 per cent, or he would hardly be dropping his bee-business, as stated in last *Review*, to engage more extensively in the supply-business. Or is it true that we have been paying that much or more profit on our hives, sections, crates, foundation, etc.? If so, how would it be to have now a discussion on the cost of supplies? Mr. H.'s account says nothing about cost of shop, honey-house, honey-extractor, wax-extractor, smokers, etc., the cost, interest, and wear and tear of which for twelve years would amount to more than a thousand dollars at Taylor's low estimate. The account also says nothing about rent for the bee-yard, which in twelve years, at the low price the average bee-keeper pays, would amount to from $150 to $200; and as Mr. H. keeps bees successfully without any of these necessaries of the average bee-keeper, and as he has had no disastrous winter losses to report, no radical and expensive changes in hives, fixtures, or management to meet the changed requirements of the markets and of improved bee-keeping during the past twelve years, no dollar-a-pound honey, (did I promise to say no more about this?) and has no expensive mistakes or other items of loss to charge to the business, we conclude he is so far above the average bee-keeper that his account can have but little bearing on cost of production with the average honey-producer. Further confirmation of this is found in the cost of manipulation, which is given at fifty cents per colony, which I doubt whether another skillful bee-keeper in the United States can report as low for as long a time.

Mr. Taylor, in his last, calls for "critically exact statements, with full details of the actual necessary expense of money and time." After these are obtained, the present bone of contention will still remain; the amount the average honey-producer may have apportioned to him as wages or salary before the cost of production can be determined. We have an illustration of this in the account of C. F. Thomas in March 15th GLEANINGS, in which this item is left out. As I understand, Mr. Thomas, in estimating profits in his hardware business, does not reckon in a salary for himself as a part of the cost of conducting his business. But let me say to him, and to honey-producers who figure in the same shortsighted way, that, if a tax on net profits were likely to hit them they would hustle around for a salary fully as lively as Doolittle, and probably make it quite as high. It seems to me that Mr. Doolittle has stated the case fairly in his last by saying that the average bee-keeper or bee-keepers on an average could get two dollars a day, or six hundred a year, without board, in some manufacturing town; and that this amount, when he is engaged in the production of honey, is as much a part of the cost of it as any other item.

To make a long story short, we will say that honey-producers on an average earn or make a hundred dollars a year outside of their business. This will leave five hundred to charge to their business. Then accurate statistics will give all other data necessary to show actual cost. In the last quotation from Mr. Taylor, the word "necessary" should have been left out by him; for, in the actual expense account, past, present, or future, will be found many items not necessary, and such will have to be audited if we are seeking the real cost of honey-production in this country. If the lowest possible cost is sought by taking only the accounts of the most skillful apiarists, the same items will be found, though neither so numerous nor so costly. The difference between the average and skillful cost will show the profit of being skillful, for the market price will be usually regulated by the general cost. If the past governs or forecasts the future (and we have no right to judge otherwise), then will unexpected and unavoidable reverses always be a very heavy item in cost of production. For Mr. Hilton and Taylor to present accounts and estimates with the reverses and losses left out is to overlook one of the *most certain* sources of cost; it is to disregard the fact that man is and always will remain a costly blunderer, and that his environments are such that his business is liable to constant loss from drouth and flood, fire and frost, disease and death, etc. At the end of a few years I predict that Mr. Taylor will report that

> The best-laid schemes o' mice an' men
> Gang aft a-gley;

for, in addition to the items he now specifies as sufficient, he may have to chronicle heavy losses from some new bee-disease or enemy; from disastrous winter mortality in his locality; from selling honey at 10 cts. instead of 15 cts., caused by a free use of H. & H. methods or other causes; from having his range overstocked, thereby reducing his average from fifty to thirty pounds per colony, and depreciating his plant in like proportion; by expense of changing his Heddon hive and fixtures to some hive better adapted to the Punic (or *Apis dorsata*) bee; and from other unexpected and unavoidable causes.

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* *Steel* should be spelled with an *a* when bee-glucose is sold as the author claims a descriptive mark should be used. The Proctor Steel Tower is to be erected on the Chicago World's Fair grounds, and will be 1100 feet high, or 100 feet higher than the Eiffel tower. As no superlative has been found for Chicago top grade, this is suggested.

So far as my observations extend among good bee-keepers, the margin of profit is small, although the expense account is usually very carefully looked after. I am, therefore, in the fullest sympathy with any effort to ascertain actual cost and to cheapen production; and because a knowledge of the former would be an efficient educator to that very large number who now produce honey at a loss, while a solution of the latter is truly the "sheet anchor" of the specialist.

I wish to assure the readers of GLEANINGS that I hold Messrs. Taylor, Hilton, and Hutchinson in very high esteem as men and bee-keepers, and that any criticism I have made applies only to their method of approaching the solution of this question, which I hold to be unwise; and, coming from the sources it does, it is injurious to our markets. As the editor has truly said, "We can not talk prices up," but we can easily talk them down. P. H. ELWOOD.

Starkville, N. Y., March 26.

[The above would have appeared in our issue for Apr. 1, as announced; but on account of the sickness of Mr. Elwood it did not reach here in time for that number. The discussion has now been well balanced up, both sides being well represented; and for the present we deem it best to have it closed, since the arguments have been made with different standpoints and with different ideas as to what constitutes cost.

Although Doolittle's side has had "the last say," it may be a little comforting to t'other side to know that we are still on their side of the fence. Taylor argues on the possibilities and actual necessary expenses, and not on average results as obtained by the average bee-keeper. As we view it, if there is a possibility of reducing the cost of a pound of honey we ought to grab at the least straw; in other words, that which is in the range of possibilities may be made to become an actual achievement. Therefore is it not pertinent to look well to what are necessary and what are unnecessary expenses? *If* we can cut off the unnecessary outlays, is there not a strong probability that Taylor's figures may be some day realized? Although we are supply-dealers, we ought to say, in all frankness, that it is the biggest piece of folly for bee-keepers to throw aside too hastily the old and adopt the new. This has been done a great deal, and it counts pretty heavy in the cost of producing honey. Nor is this inconsistent with what we have already said in these columns. We have repeatedly advised bee-keepers not to cast aside their old loose frames all at once, and adopt what we feel sure is better—self-spacing frames. The change should be made gradually, and that, too, on the assumption that the trial of a few justifies the introduction of more. What we have advised and still advise is this: When you *need* more frames, get the latest self-spacing. Taking the whole thing in a nutshell, Messrs. Doolittle and Elwood have argued on the actual results attained by bee-keepers; Mr. Taylor, for what *might* be attained, putting it, as it seemed to us, in the range of possibility. Taking the whole discussion, even if we are more on the side of Mr. Taylor, we find we have at least an arm and one foot over on Doolittle's side of the fence, and it is very possible that a few months or few years later will draw us clear over, coat-tails and all. Mr. Elwood touches on an important matter; viz., we can not talk up prices, but we can easily talk 'em down. The impression should not go abroad that the average bee-keeper realizes in sales double on the cost of his honey, for these are not the facts. If the middlemen think bee-keepers as a whole are making 100 per cent on their investments they are going to work a scheme to get a part of the per cent. No, let us clearly understand what are facts and what are possibilities. If we produce comb honey *now* at, say, 8 or 10c per pound (it never ought to cost 15c for the average season) perhaps in the future if we look well to possibilities we may produce it for 5c per lb.]

MANUM AND HIS NEIGHBOR.

CONTINUED.

"Manum, at what stage of advancement do you prefer to remove the queens?"

"Well, Charles, usually on the first discovery of eggs in the queen-cells. Last year I removed a few on the 28th of May, and by June 17th all were removed. I sometimes take out queens from such as are full of bees and brood, even if there is no sign of swarming, in order to save hunting for the queens later on. The most tedious, tiresome work I have to do is hunting out queens in these full colonies. Where I have to work at it all day there is more work than pleasure in it."

"I believe you experimented in caging the queens in the sections, and leaving them on the hive where the bees could have access to them, did you not?"

"Yes; I tried it to some extent, but I can not give a favorable report yet. I want to try it another season before I can decide. In some instances it worked successfully, while in many others it was a failure. I believe, however, that the plan can be made a success if the queens are liberated at just the right time; but I have not as yet discovered *just* when the right time is."

"What are the disadvantages to this plan, if there are any?"

"In the first place, I believe it is an injury to the queens, when confined from 8 to 12 days where they can not lay eggs. This sudden check from laying, which is contrary to their nature at this season, seems to be an injury from which they do not seem to recover, because, when liberated and not rejected (which is often the case), they will lay eggs here and there all through the hive, and then swarm. But I find that, where they have been caged but 5 to 8 days, they behave much better; hence I am in hopes yet to make this plan a success. Charles, there are so many things about this bee-business that I don't understand, that I begin to think I never shall know it all."

"Did you think the bees worked any better where the queens were caged than where they were removed entirely?"

"No; I could not see that they did."

"Then what would be the advantages by caging, over the removal of queens?"

"Well, where one does not sell his yearling queens it saves introducing new ones, as these are already introduced; and I fancied where there was a laying queen present they were not as liable to start queen-cells as where no queen was present; however, they did in some cases start cells fully as soon, and as many of them."

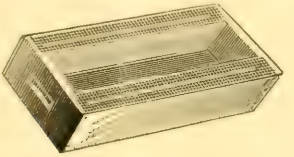
"Now, Manum, what would you advise me to do, should I decide to run my two apiaries alone—to remove the queens entirely, or cage them?"

"Well, Charles, taking all things together I would advise you to remove the queens in preference to caging them; however, you might experiment in caging a few. By so doing you might discover some very important points which would be beneficial to other bee-keepers. It is not for one person to discover or know all. We can all help a little. There is a large field of knowledge in nature that is yet undiscovered, with room enough for all to work in. Hence let us all take a hand in the work and then compare notes."

"Well, well, Mr. Cox! walk in. Charles and I are having a convention all by ourselves."

"Yes, I see, Manum; and I am sorry I did not come in sooner. Charles living so near you he can step in and talk bees at any time; but I am so far away I have to be satisfied with what I find in GLEANINGS. I came in, Manum, to ask if I could see your new feeder that I hear so much about among bee-keepers, and to ask if it gives you satisfaction."

"Oh! yes, Mr. Cox; you can see it, and here it is."



MANUM'S FEEDER.

"Why, Manum, it is a different-looking thing from what I supposed it was. Why! it is a regular box. Won't it leak?"

"No, not if properly made—at least, I am not troubled with their leaking; as you will see, they are thoroughly made."

"You use them, I hear, for feeding back extracted honey. How do you do it?"

"There, Mr. Cox, you see they are just the width and length of my clamps; and by placing one on a clamp of sections you will see that it is so arranged that the bees can pass up from the sections into the feeder and back again, no matter how many tiers of sections are on the hive; just place the feeder on the top tier, and it will work like a charm."

"How much does the feeder hold?"

"Well, those made for my size of clamp hold 16 pounds of extracted honey. You know my clamps are only half size—in other words, it takes two to cover the top of my brood-chamber; hence when I wish to hurry up matters I put on two feeders."

"Charles, have you tried these feeders " Mr. Cox asked.

"Yes," said Charles. "I have 20 of them, and intend to make 100 more. They are the best feeder I ever saw. My man told me last fall that he wished I would give away all my old feeders and replace them with Manum's new kind. I have urged Manum to have them patented, but somehow he doesn't seem to care for patents; whatever he invents he *gives* to the public."

Mr. Cox asked, "Now, Manum, there is another thing I want to ask you. What do you think of the Porter escape? Have you ever used them?"

"No, I have never used them. Mr. Porter sent me two last fall, but too late in the season to give them a trial, hence I can not speak from experience. But simply seeing them convinces me that they are a good thing—yes, a *perfect* escape."

"Now, Manum, why is it that we heard nothing from you through GLEANINGS for so long a time?" asks Mr. Cox.

"The fact is, I have been very busy since last May, as you must already know. Besides the care of all my bees I have had to look after and ship my crop of honey, prepare and feed the bees for winter, and, in addition to all this, I have made extensive repairs on my house; and, furthermore, I felt it a duty to entertain the *new queen*—a pleasant duty, which, of course, I did not neglect. I hope now, however, to be able to talk to the readers of GLEANINGS several times before the busy season is upon us. I will add, before you go, Mr. Cox, that the new 'queen' (Mrs. Manum) manifests much interest in bees; and the symptoms are that she will be a great acquisition to our calling, inasmuch as she proposes to acquire a knowledge of the business and take an active part in the apiary.

Bristol, Vt., March 23. A. E. MANUM.

[We are glad, friend Manum, that you have given us more light on this question of caging queens or removing them to prevent swarming. There is a great deal of disagreement on this subject, and we need more facts. Still, there are those who make it a success, as you do. In regard to the feeder, if we understand it, it is very much in principle like the one introduced by Dr. C. C. Miller, and bearing his name. The thing has since then been improved at the Home of the Honey-bees, although the principle is kept the same. It is an excellent feeder, and we don't wonder that you and your neighbor like it; that is, if it is the same feeder. We have no doubt that you originated your feeder without the knowledge of the one gotten up by Dr. Miller, or at least you had not taken particular notice of it when it was illustrated and described.]

WRITING FOR THE BEE-JOURNALS.

ANSWERING QUESTIONS OVER AND OVER AGAIN BY LETTER THAT ARE ALREADY COVERED IN THE TEXT BOOKS.

Only a little over 30 years have passed since the advent of the first bee-paper in our country; but what a change has been wrought along the literary lines of our pursuit! Thirty years ago scarcely a dozen could be found who would even dare to write on the subject of bees for publication; but now we have hundreds who so write; and we find that the matter has assumed such proportions that a whole number of one of the leading bee-papers (the *Review*) is devoted to the discussion of the importance of "writing for the bee-journals." But I did not start out to tell who should or who should not write for the bee-papers; but of some of the things which a writer to such papers has to encounter by becoming prominent in this respect. In that memorable issue of the *Review* alluded to above, Mr. Clark says, "Mr. Doolittle writes too much." and I have about come to that conclusion myself, and here propose to tell the readers of GLEANINGS some of the things which have driven me to that conclusion. I have written to the extent of answering every letter and postal card that has ever come to me so far; but just how long I shall keep it up, I do not know, for I have of late been impressed with the idea, that, after keeping this thing up for fifteen years, I ought to have a vacation. Here are some of the things which have caused these thoughts to come to my mind:

A person in Florida writes, "In a back number of GLEANINGS I saw an article from your pen about the different kinds of willows. As I have embarked again in bee culture, I should like for you to send me cuttings of all the different kinds of willow in your vicinity. Please label them all nicely so I can tell them. We have only the swamp-willow here. Inclosed I send three postal cards for postage, not having stamps on hand. If not enough for the postage, I will pay the remainder here. Your articles are a great help to me. Long live GLEANINGS."

I heartily indorse the last sentence; but in order to indorse it long I must live myself. I am also glad to know that my articles help some along the rough and uneven way of apiculture; but will these things and the three postal cards warrant me in tramping several miles for willow-cuttings, carefully labeling them, packing them securely, and taking them one mile to the postoffice? If not, will you, Mr. Editor, and the readers of GLEANINGS, tell me what I shall do?

Another writes: "In a late number of the *American Rural Home* I see an article from your pen, on bees, which interested me very much. Will you please write me all about how to manage bees, how to build a bee-house, what kind of hives are best, and how much profit I can expect out of the business? Please give full particulars in the matter."

Clark says I write too much, yet here is a man who apparently doesn't think so, but wants me to write a book for his benefit, and present it to him in manuscript, without even inclosing a postal card to pay a small part of the postage. He little dreamed that, when I came to his letter, I had already been answering questions for an hour or more, or that there were from five to ten unanswered letters on my desk, with the hour of bedtime at hand, or that I was tired and nearly exhausted with the labors of the day. I want to accommodate all, but must be excused from writing for any one the details of what he can procure through the papers and books published on bees. In this case I wrote him that he would find all of his questions answered in such and such books, naming them; and if he wished to keep up with the times he should take one or more of the different bee-papers, naming them also. As this required too much writing to go on a postal card, of course it required an envelope, sheet of paper, and a two-cent stamp. It seems all should know about this envelope, paper, and postage, without being told; yet not one in four who ask questions similar to the above incloses a stamp. A stamp to them means very little; but to the one who has followed answering all such questions for fifteen years, it means a small fortune.

Another says, "I wish to thank you for all of the good articles you have given us in the bee-papers for many years. I always turn to your articles the first thing when I get any of the papers which you write for, being sure of a feast every time. Now, if you will grant me a favor you will lay me under renewed obligations to you for your kindness. On a separate sheet you will find some questions which I wish answered. If you can find time to answer these you will greatly oblige. Yours truly, —— ——."

By this time Mrs. D. has retired, but has not gone to sleep, so I call to her, telling her of the good words spoken above, and how glad I am that we could be the means of doing some good in the world. She replies by asking if I have looked at the questions.

"No, but I will."

The "separate sheet" proves to be a whole sheet of foolscap paper written solid full of questions, which begin: "1. I think I have foul brood in my apiary. Will you receive a sample from me and tell me if it is such? 2. How do you tell foul brood? Please describe it so minutely that I can tell whether I have it or not; also tell me just how you would work to cure it." The 3d, 4th, and 5th questions are similar to the above, on foul brood. "6. How many colonies of bees do you keep? 7. How do you manage them during swarming?" and so on down to the end of the sheet. What shall I do? I dip my pen in a different-colored ink from what the letter was written with, and right above every question give the very best answer I can in the space there is between the lines, directing to different books and articles as much as possible, in the mean time remembering how good old Elisha Gallup used to bear with me when I bothered him in the same way, and trying to be glad to repay him by doing for some brother or sister what he kindly did for me. In this way I keep on, and probably shall as long as questions are sent in. Being a little worn to-day I felt as if a little knowledge of what a writer has to do might cause some to ease up a little on these private questions, and help others to know that the bee-writers do not all lie on "beds of roses," as well as to relieve me a little by not keeping all of the good things to myself. G. M. DOOLITTLE.

Borodino, N. Y., Mar. 16.

[We thoroughly appreciate your situation, friend D. As editor of GLEANINGS it is one of our duties to answer questions. Those that are not of sufficient importance for publication are answered by letter. But unless *your* querist is kind enough to inclose you something, you will probably get no pecuniary returns for your pains and trouble. A correspondent certainly ought to inclose a stamp, or, better, a stamped and addressed envelope, to bee-keepers of whom they desire information; and where he calls for very full answers he ought to ask his teacher, as it were, to send in his bill. As editor of GLEANINGS, however, we are prepared to answer all the questions, or at least ought to be, without even so much as a stamp or stamped envelope; and while our replies have to be very meager, often referring the querist to our A B C of Bee Culture, it is the best we can do. It is a little curious why people will ask questions that are very thoroughly and well covered in nearly all the text-books. Every once in a while we are asked to give very full particulars as to when and how to transfer. There is not a general text-book on bee culture, however poor, but answers both of these questions fully. There are many others of a similar nature that we invariably refer to some page or paragraph in our A B C book.

RAMBLE NO. 57.

"OUT ON THE OCEAN SAILING."

When on my day of life the night is falling,
  And in the winds from unsunned spaces blowing,
I hear fair voices out of darkness calling
  My feet to paths unknown.

We can little imagine the size of a country until we commence to travel over its surface. Everybody knows that Texas is the largest State in the Union; but few people stop to think which is the next largest. It is California, and it is noted for its magnificent distances. Its entire coast line is 900 miles. From San Francisco to Los Angeles it is about 440 miles, and a journey by steamer gives the traveler two nights, or nearly 48 hours, on the ocean. My face was set toward Los Angeles, and a sea-voyage had been an experience I had often dreamed of, but never imagined I should have the privilege to make one, and especially on the Pacific. This was, then, an opportunity not to be slighted.

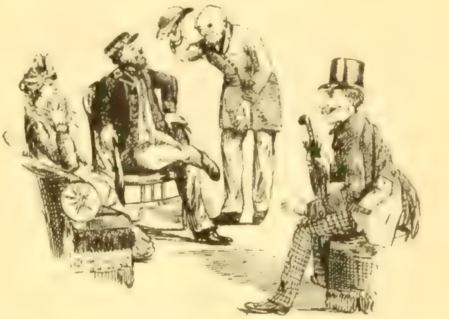
The good steamship Queen left her wharf at San Francisco at 11 o'clock A. M. on Sunday, the 21st of October; and if all was noisy bustle when we started, it was quiet enough for any Sunday when we left the city; and if I had any misgivings about starting on that day I had none after I had been out a few hours, and only wished that all of those who were laboring and in the pursuit of questionable amusements on the Sabbath were sailing out upon the ocean where all is so quiet, so grand, and so soul-inspiring. As we passed through the Golden Gate the fog was rolling in from the ocean; and land, though quite near on either side, could not be seen. The hoarse fog-horn on the steamship would blow every few moments, and an answer would come from another deeper-toned horn on some dangerous point on the shore. We soon experienced a change, however, and knew we were out upon the broad ocean, from the rise and fall of our ship as she encountered the regular ocean-swells. The fog rose after a few hours, and the steamer was out about 25 miles from the shore, and kept about that distance while between stopping-points. It was a pleasant sensation to stand on the highest deck at the stern of the vessel, and look forward and see the prow rise and fall as we went over the swells. The sea-gulls kept us company. It is said they can tell when meals are in progress from the savory smells that arise from the culinary department. However this may be, hundreds of them were always on hand to dive and squabble for the refuse that was thrown overboard after every meal.

A small amount of shipping is seen on this coast compared with the Atlantic. Many large cities in the East make an enormous coast trade; but their absence here, of course, diminishes the number of ships; and from the barren wastes of treeless mountains all along the coast it will never reach great magnitude.

Our state-rooms were well provided with all appliances necessary to aid a person to become seasick; but the sea was so even-tempered, so pacific, that none on board were thus afflicted. If there were any, they kept it very quietly to themselves.

The long quiet hours of the day were passed by many in their state-rooms, reclining in their berths, reading or sleeping, mostly the latter, for some people think they can sleep better in the day time when they don't want to than in the night when they do want to. This fancy, perhaps, holds good in other places as well as on shipboard. In the evening there was a gathering in the grand saloon. Some one leads on the organ, and several gospel hymns are sung; and, did you imagine it, my friends? those hymns are sung all across our land, under every condition of life, in the city and in the camp; and in the most unexpected places some favorite air will be wafted to your ear. Who shall say the tiny seed is not taking root in the apparently barren ground? After the songs, we listen to the fat and jolly captain who is entertaining a group of ladies by telling them that no one is seasick except those who are scared; that men are more liable to be seasick than ladies; that the average man's hair would stand on end when the waves begin to roll.

A sedate man in the corner wanted to know how a woman's hair could stand on end when it is always tied down. He said that, while it was perhaps a historical fact that a woman's hair never stood on end, there were also men whose hair never became erect. He further said that no high waves or lions, nor even ghosts, could affect him. There was a prospect of some betting on the subject; but as no lions or ghosts were just then handy, that scheme was dropped. Some one then proceeded to investigate the man's head, when, lo and behold! the man was baldheaded. The laugh went merrily round; but the captain insisted that, though bald, a man could have the same sensations, which, to all intents and purposes, were the same as though he had the hair of a Samson. So the paradoxical question is open for debate: "Can a baldheaded man become so frightened as to make his hair stand on end?"



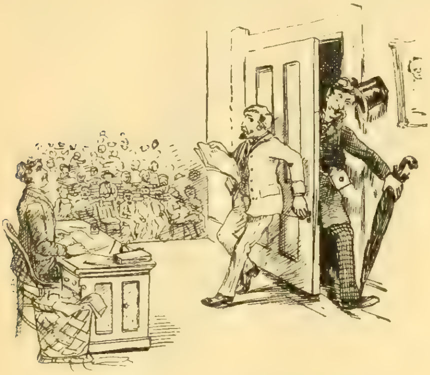
"CAN'T MAKE MY HAIR STAND ON END."

There are but few islands in sight until we near the port of Santa Barbara. About 25 miles out from this point are the islands of Santa Cruz, Santa Rosa, and several smaller islands. Santa Cruz is the largest, and it has been suggested that this would be a good location upon which to breed a pure strain of bees, as the selection would receive no interference, the location being completely isolated. There are no bees upon these islands; and if the many fogs would not interfere, the plan may some time be tried. These islands are something of a resort for pleasure-seekers, and on their shores are found seals and beautiful shells.

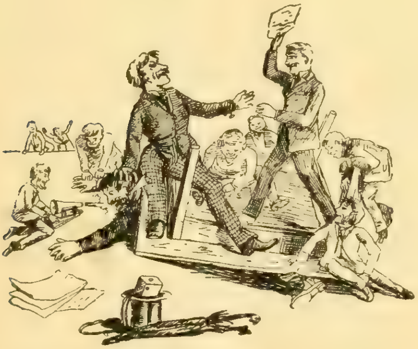
San Pedro is the port for Los Angeles. Our vessel could not run up to the wharf, so several hours were spent in hoisting out a great amount of freight upon a lighter, and lighter and passengers were towed to port by a small propeller. Twenty miles by rail, and I arrived in the beautiful city of Los Angeles.

Having corresponded with Mr. Brodbeck, the secretary of the Southern California Bee-keepers' Association, I desired to become personally acquainted with him, and found him wearing his life away in the dry-goods establishment of Mr. Coulter. The next morning the Association met in the W. C. T. U. hall. This may be a late date to report the proceedings; but as they were very "*uneek*," and were described by the local press as a bamfuzzled crowd, a few words in relation thereto may be admissible.

Several of the leading bee-keepers desired to change the Southern into a State organization. The secretary, with the consent of a majority of the executive board, issued a call to that effect. The president, however, had a very fatherly interest in the old organization, and, soon after the meeting was called to order, it was evident he meant to fight it out on that line, even if it occupied the entire time of the convention. After a long struggle a vote was taken, and the State lost by one vote. The treasurer then took up the call issued by the secretary, clause by clause, and gave our genial friend particular fits. In the last clause of the call, the secretary stated that "Rambler" would be there; but as the constitution of the association was so narrow as to admit only those who had an ownership in bees, the treasurer became so excited over this "Rambler" portion that he figuratively slammed the door in the Rambler's face, and exclaimed that no Rambler should get into that convention as long as he had power to prevent it. The secretary and the Rambler kept perfectly sweet; and when the gentleman—no, the treasurer, had exhausted himself and the subject, the convention proceeded to the election of officers; and, remembering the hours of wrangling, the tables were nicely turned on the treasurer, and another man elected instead—Mr. Abbott, of Pasadena. The secretary was made happy by having his action indorsed by a unanimous re-election. The Rambler also felt as happy as a bright sunflower. The ex-president tried to put in a few more remarks, but nearly every bee-keeper arose and buzzed so loud that his voice was drowned, and it looked as though a swarming-out mania had taken possession of them. Mr. Abbott, the new treasurer, took the chair, the buzzing ceased, and the swarm (of bee-keepers) alighted in their seats again.



NO RAMBLER ALLOWED IN HERE.



TABLES TURNED AT THE CONVENTION.

Conventions are supposed to be held for mutual instruction, advancement, and the having of a fraternal era of good feeling; but this convention had so much wrangle that but little time was left for mutual benefit, and many returned to their homes not satisfied with the results. The moral learned is, that associations are not formed for the benefit of any one person or clique, but for the many; and when their interests are ignored, there is always more or less music in the air.

Quite a number of bee-keepers live in Los Angeles, and in that other charming town, Pasadena; but while their homes are in town their apiaries are miles out in the mountains, which are ever present in this portion of California.

There seems to be a sort of mutual understanding, or an unwritten law, among bee-keepers in relation to the rights of location. If a person secures a prior right by establishing an apiary in a certain field, it is seldom that a man will crowd in where he is not wanted, or where it will be a detriment to his own interests as well as to his neighbor's.

Wishing to find an apiary in the sage district, I wandered due southeast from Los Angeles; and until further notice the shades of night and the Hotel Temescal will hide the

RAMBLER.

SPRING DWINDLING.

JAMES HEDDON DECIDES IN FAVOR OF OUTDOOR WINTERING; HE PREFERS OUTSIDE WINTER CASES, AND WHY; HOW HIS CASES ARE MADE, ETC.

The time is drawing near when we shall read from the pens of various bee-keepers the following: "My bees wintered pretty well, but I lost heavily by spring dwindling." Now, Mr. Editor, I am not going to say any thing I haven't said before, nor offer any arguments that are new, except only as all arguments are new until they are answered. Immortal youth is one of the attributes of an argument which can not be answered. Neither am I going to suggest any methods that I haven't written for bee-papers long ago, and practiced even longer. Your readers change, and it may be of value to some of your present subscribers to know what methods I have found most successful in wintering and springing an average of 500 colonies during the past 15 years in a locality where bee-diarrhea seems to be right at home nearly every winter.

As I have before said, and feel that I know, the excreta of bee-diarrhea is undigested pollen; and pollen-eating during cold and confinement is the cause of that malady, compared with which all other causes of winter losses combined sink into insignificance. Again, I claim as heretofore that there is no such thing as spring dwindling among bees which are well wintered; that a normal colony of bees never dwindles away to nothing in spring after the time comes when they can gather pollen, and fly most of the time, unless the bees of such colony had intestinal inflammation when they crossed the line between winter and spring, as we term it. Confinement without extreme cold will produce the malady when the food is right for it; consequently, during all such winters as the one just past, and three or four preceding it, in Southern Michigan bees are safer properly packed outdoors than in any special repository. Every winter I have had them both ways, and have observed results in other apiaries round about.

But now comes the question, "How should bees be packed for outdoor wintering?" I have packed in so many different ways during the same and different winters, that I feel positive of the superiority of the one I am about to describe; and the reason of this article at this date is because I have found that every colony wintered indoors should be packed the same way for springing, whether they are partially diseased from wintering or in perfect health; because, even if the latter, and no spring could kill them if not packed, even these healthy colonies will be enough stronger when the surplus harvest opens, because of this packing, to repay the owner several times over for all cost and trouble. I once discussed this question with W. Z. Hutchinson, I taking the opposite and he my present position; but I afterward found out my mistake, and admitted it — yes, declared it several years ago.

I pack as follows: I make a box of common lumber two to three inches larger than the hive all around. It has a tight bottom, and a cover shutting over like the lid of a trunk, but without hinges, of course. After taking the hive from the bottom stand, and placing the box thereon, pitching it 15 to 20 degrees forward, I put a solid 1½-inch dry sawdust in the bottom, set the hive inside on the sawdust, with an arrangement to make the entrances correspond; drop in a bridge to make a closed entrance which will keep out the packing; then fill in on all sides with sawdust lightly packed, rounded up at the top, the cover of the box put on and weighted down. I use no upward ventilation nor absorbents about the hive—just leave the plain board cover glued fast. The box cover must not leak, because it lies flat and solid on the sawdust, which would absorb all the water that might leak through, injuring the hive and box cover, but would not hurt the bees at all. Now listen. Here is a favorite point in the arrangement: My hives are painted "dead" white—white to reflect the sun's rays, making them much cooler in summer in the early and late part of the day, when the sun can shine under my shade-board sufficiently to strike the brood-chamber; "dead," to prevent glistening. These packing-boxes, however, are painted very dark to absorb the solar heat during winter and spring, and the close packing without any interspaces is what conducts this heat clear through to the combs and bees. The above is my main reason for not desiring a greater space between the hive and outer case than from two to three inches, and for using material as solid as sawdust tightly and closely packed between covers, as elsewhere.

Just here I think I hear some one say, "If you are going to pack like this, just for springing colonies taken from the cellar, why not pack them in the fall and leave them out, depending on outdoor wintering, and done with it?" My reply is, "Yes, why not? Certainly it is the best, considering all trouble and expense, except in extremely cold winters, compelling continued confinement, and these are the exception and not the rule in Southern Michigan." I believe the outdoor plan, with such packing, which more than pays for springing alone, to be first choice.

Your readers will be able to judge from the above in what latitudes and localities I would consider this method of outdoor wintering preferable. The amount of sunshine has much to do with it.

The above are my most earnest conclusions, based on several years' experience and observations. What are yours? JAS. HEDDON.

Dowagiac, Mich., March 23.

We do not know much about spring dwindling—that is, what causes it—whether it is a malady peculiar to certain seasons or whether it is due to the consumption of too much pollen. In our locality we have taken no pains to select combs without pollen for wintering, and yet for the last six or eight years we have had very little spring dwindling.

You may be right, and you may be wrong in regard to pollen; but we are certain that you are pretty sound on the wintering question. While we have been making all this noise about non-absorbents and sealed covers, we presume you have been using them for several years. By the way, there has been a good deal of foolishness shown as to who was the first one to discover the sealed-cover idea. As the expression goes, it is "older than the hills."

We have no doubt that your winter cases give excellent results; and we are sure that you are right in advocating that cellared bees ought to be protected after being set out in the spring, for a time at least. Our winter cases gave us most excellent results. It may surprise you a little to know that those with dead-air spaces wintered the bees just as well as those in which the same spaces were packed with chaff or planer shavings. It may not do so in your locality, but it does with us. Our winter cases, as you may know, are made of ⅜ lumber, and only 2 inches larger inside all around than the single-walled hive is outside. It has no bottom—it simply slides down over the hive, padded sticks being on the inside bottom edge to keep out the cold. A ¼-inch board is then put on top of the hive, and the bees are allowed to seal it down, which they will do, of course, if put on in time. Above this thin board is a chaff cushion 2 inches thick, and the winter case is then covered by the ordinary hive-cover.

We remember that you once took the ground that indoor wintering in your locality was better; but now it is a pleasure for us to observe that you decide for outdoor wintering for average winters. For our locality we are sure that it is the better way. We are equally sure that, for very cold localities, the cellar plan is the better. The great trouble with localities like our own, and perhaps yours, is that bees in the cellar are apt to be noisy and uneasy because the weather outside is at times too moderate.]

ARE CLOSED-END BARS OF BROOD-FRAMES PREFERABLE TO OPEN ONES?

READ AT THE OHIO STATE BEE-KEEPERS' CONVENTION, CINCINNATI.

I suppose that, if the question were put in other words, so as to read, "Are the standing closed-end Quinby brood-frames preferable to the Langstroth hanging ones?" the general verdict would be that the latter are preferable. Yet there is undoubtedly a growing sentiment against loose hanging frames; but that it will ultimately lead to the adoption of a closed-end brood-frame, I do not think. Although many excellent bee-keepers now use them, and would have no other, still my faith is stronger to-day than ever that some form of the Langstroth hanging frame will ever be the most popular, and will serve to perpetuate the memory of the man who has done more toward the advancement of apiculture than any other that ever lived; who lifted our pursuit from an unprofitable and unsatisfactory investment in "straw skeps" and box hives to a pursuit at once profitable, respectable, and highly fascinating to a large class of our people. That this revival of apiculture from the state of obscurity into which it had fallen was due to the Langstroth invention, there is not one who to-day doubts. That it still has merits over every other invention of a bee-hive, either ancient or modern, it seems to me is so far proved by the history of apiculture in the last forty years that the question is hardly worth discussing; and that these merits lie chiefly in the superiority of the hanging frame is equally apparent. So it would appear, that, after the general approval of the bee-keepers of the civilized world for forty years, we may well conclude that the principles of the Langstroth hive will survive and become the dominant ones in the popular hives of the future.

The present tendency against *loose* hanging frames is not necessarily a tendency toward the use of closed-end brood-frames, but, rather, toward some practical method of spacing and fixing the hanging frame. This we have had for some years in the Hoffman-Langstroth frame, which of late has undergone a further improvement by the Root establishment at Medina, so that, as now constructed, it is without objection, and fulfills every function claimed for the closed-end frames, and yet is about as readily movable as the old style of the L. frame. However, in a hanging frame only 7 inches deep, which I use, I prefer to space and fix the frames by a very light form of the Van Deusen metal corner, as it spaces exactly 1⅜ inches from center to center, and does not interfere with the ease with which the frame may be taken from the hive. It is, therefore, my opinion that, between these two methods, the public need not look further for a practical means of keeping the Langstroth frame in its place. The preference, then, must be given to brood-frames with open end-bars. Dr. G. L. Tinker.

New Philadelphia, O.

[The first sentence of the last paragraph gives the true statement of the case. So many have inferred that, *because* we do not recommend the loose frame, therefore we argue for the closed end. Not so; as the doctor well states, some method of accurate spacing is demanded; and that, for the L. size frame, the Hoffman end-bars seem to meet the requirements. As to a seven-inch frame, the Van Deusen may be better.]

AUTOMATIC SELF-HIVERS.

PRATT'S DEVICE CRITICISED.

As I invented the first self-hiver, it is quite natural for me to take quite an interest in all that is said about them. In Gleanings, page 199, I see that Mr. Pratt illustrates and describes a device for self-hiving bees, which he claims as his own invention. Well, it may be that it *is* all his own. I want to say that Mr. P. and myself have talked a good deal about self-hivers in the last two years.

Last season I remarked to Mr. P. that I did not know but that I should have to arrange my swarmer so as to compel the bees to pass out through the new hive in order to hive *all* the bees that issued with the swarm, as, by being compelled to enter a new entrance on their return, not all the bees that come off with the queen would find her and enter the new hive. I also stated that there were strong objections to placing one hive before another, and thus compelling the bees to travel such a long distance in order to reach their combs on returning from the field.

I will describe and illustrate, in Fig. 1, the most practical self-hiver tested; and this has been thoroughly tested, and does its work well.

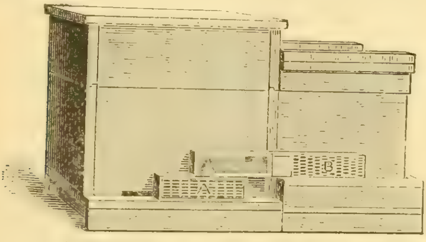


FIG. 5—FULL COLONY. FIG. 6—DECOY HIVE.

A and B represent the self-hiver.

The hive at the left is supposed to contain the colony; the one at the right hand is a sort of skeleton (or decoy) hive. In the decoy hive should be placed one dry, clean brood-comb. Several days before a swarm issues, the bees will be busily working on the comb; and when the swarm issues they enter the new hive. The queen quickly enters box B, and is followed by more or less bees; and when the swarm returns the bees readily find their queen and settle down to business. In case there are not bees enough to make as large a colony as is desired, the parent hive should be removed. Now, no one can reasonably object to this; as the old or new swarm should have a new location, and experienced bee-keepers would advise making the young swarm as strong as possible, it is certainly a great advantage to do so. I consider the above arrangement for a self-hiver the most practical of any yet described. In working for a practical self-hiver I kept in mind the fact that the entrance should be as free of any sort of obstruction as it is possible to keep it, and at the same time have a swarmer attached to the entrance, which, in my opinion, is of itself all the obstruction that should be there. I also kept in view the fact, that the swarmer, in order to come into general use, should be sold at a low price.

I have no doubt that the Pratt device will hive the bees. It seems to me that he has adopted the same principle for trapping the queen that I have been granted a patent for. Therefore the Pratt swarmer, like all the others, is an infringement on my claim.

Some time within six months my good friend Dibbern took considerable space in this paper trying to make your readers believe he had devised a swarmer that would hive a swarm of bees every time. Before Mr. D. got through it was found that his swarmer had *never* hived even one swarm of bees. All that he could claim that it had done was to catch the queen and a few bees. I should say that it catches about as many bees, and works about the same as the drone and queen trap. By the way, Dr. G. L. Tinker says the queen-trap is as good a swarmer as he wants. Well, if one is in the apiary most of the time there is no better arrangement for managing swarms when one issues than by using the trap. Where the trap is used, the bee-keeper is not obliged to drop his work when the swarm comes off; he can take his time to hive them. If no hive is ready when a swarm passes through the trap, just place a box near the hive the bees issue from, so that the trap will be about the same distance from the ground as when on the hive, and I will guarantee that not one bee will return to the old hive, but all will go to the trap and cluster with the queen. The trap should not touch the parent hive. On the other hand, place a new hive at the side of the one the bees issue from; and as soon as the queen is seen in the trap, place it on the new hive and every bee will enter it and thus hive themselves. Release the queen when the bees begin to go in.

Wenham, Mass. Henry Alley.

[We sent the above to Mr. Pratt, who replies:]

All honor to Mr. Alley for inventing the first self-hiver! Even if he did not perfect it, great credit is due him for starting the thing. I admit that his first device caused me to take great interest in the matter, as it did bee-keepers all over the country.

Mr. Alley and myself *have* talked a good deal about self-hivers, and it was during some of those talks that I suggested the form and make of the box B connecting box A and C, which caused him to abandon the zinc tube used on his first device and adopt the improvements, although it was hard at first to convince him that the round connection was not the thing. Then after it was found *that* would not work I gave him the point of letting light into B B, over the cone, which proved a success in calling the queen into box B.

Mr. A. E. Boal's suggestion on page 706, Sept. 1, 1891, was the cause of box C being abandoned (see *Api.* for Nov., page 161), and the self-hiver illustrated by Mr. A. above was brought about in this way. Yes, Mr. Alley is perfectly justified in claiming his swarmer as all his own. I am pleased to receive suggestions that will help me perfect a device. It is in this way the most complicated machines are made perfect and useful.

I do not remember of Mr. Alley's telling me that he "did not know but that he should have to arrange the swarmer so as to compel the bees to pass *through* the new hive." If he did it made no impression on my mind. I do remember of his telling me that he would have to devise some way of compelling the bees to pass out of the hives opposite the entrance to the new hive, so that the queen would be trapped there, and more bees would pass in with her. I did not understand, as he has stated it, at all, nor did my new principle originate from any of Mr. Alley's statements. There *is* a little objection to having one hive placed before another, also beside another, and these objections I have overcome in a recent device with the new principle of trapping the queen in the hive the swarm is to occupy, and causing the bees to join her by the entrance they have become used to.

Mr. Alley is mistaken when he says my swarmer is an infringement upon his trap. Reading both patent claims will show that they in no way conflict with each other. One is used to hive a swarm of bees, while the other is used to catch drones. I can not but echo what Mr. Alley says about the advantage of his drone and queen trap, an excellent device. I have always been loud in its praise—justly too; but the drone and queen trap is not an *automatic* swarm-hiver. E. L. Pratt.

Beverly, Mass.

THE PRATT AUTOMATIC SWARMER.

ITS FEATURES RECONSIDERED BY C. H. DIBBERN.

I was very much interested in the Pratt self-hiver, as described on page 199 of Gleanings. I have experimented largely in that line during the past few years, with various devices of my own, with more or less success; but I am free to say that the Pratt is far ahead of any thing heretofore suggested. I am well aware that it is not very safe, usually, to give a positive indorsement to a device that we have not ourselves tried fully in actual use; but a single glance at the cut fully convinced me that the one great obstacle had been overcome. I had been watching for some further explanations from Mr. Dibble, who referred to some device of his described on page 92 of Gleanings, and still hope he will give us a description of his swarmer. I feel quite sure that the perfect swarmer will soon be produced, if, indeed, we have not already got it.

Let us consider some of the advantages of the Pratt over all other automatic hivers heretofore described. In the Pratt system the swarm returns to the same entrance to which they have long been accustomed, and, of course, there are no bees lost by trying to enter adjoining hives as is often the case where the queen is led to a new place. As the queen will be almost surely in front of the empty hive, where the bees will readily find her, it is quite certain that nearly all the swarm will remain in it with her. One great point in favor of this plan is, that the hives can remain safely as they are for a week or so, with advantage, as the young bees hatching in the old hive will be constantly reinforcing the new swarm. If the honey surplus cases are shifted over to the new hive, it will be a great help to them; and such a swarm should continue working in the sections right along.

Some of the disadvantages are, that the bees have to travel the whole length of the empty hive, passing two perforations before reaching their own hive. Now, if a queen-excluding honey-board is used, there will be a third perforation to be passed before the surplus cases are reached. This objection, however, may be more apparent than real, as that has proved to be the case with the queen-excluding honey-board. Another objection would be, that, in an out-apiary for instance, one could never tell when the bees had swarmed, without looking inside of all the empty hives. However, as dead drones will collect in the empty hives, they can be brushed off the bottoms by removing the hives, when, if there has been any swarming, it will be readily discovered.

I do not see that there is much less "machinery" about it than about most of the other self-hivers. It certainly will require nice adjustment to have all the parts fit nicely, and keep them in place so the queen will find no loophole through which she might escape. Another difficulty that will present itself will be that, in many hives, there is not room enough for the perforated bee-escape device for the bees to pass it readily under the frames. This can be overcome in a loose-bottomed hive by nailing narrow strips around the edges, or by slipping a narrow rim under the hive-body. In a tight bottom like the L. this is not so easy; and when you get the swarm hived in such a hive, one would have to take all the frames, bees and all, out, to get the device out of the hive. That would certainly be quite a job for a beginner. My own hives are admirably adapted to this system, as I have only to remove the back strip from the bottom-board. A hive, however, with a solid bottom, without an entrance in the rear end, and with insufficient space under the frames, would be difficult to arrange for this system.

But all these objections are as nothing when compared to the great difficulty which Mr. Pratt has overcome in preventing the greater part of the swarm from returning to the old hive. I shall certainly give this plan a thorough trial, and I am quite confident that it will fully solve a very perplexing question.

Milan, Ill., Apr. 4. C. H. Dibbern.

GRADING HONEY.

WHAT A CALIFORNIAN THINKS ABOUT IT.

Friend Root:—Having read with intense interest the many schemes of our eastern brethren in the bee-business, regarding the grading of comb honey, and not seeing any thing on the subject from the California bee-men, I thought I would say a few words to see if I could stir 'em up a little. As California produces considerable comb honey, I should like to hear something from her apiarists on this question of grading it.

For my part, I think there are too many grades proposed. We should put our honey on the market in such nice shape that the dealers would have to grade it as Pat did the whisky. Pat said the whisky was all good; and when pressed for a comparison, he admitted that some of it was a little better than others.

Now, on page 20, Gleanings, the North American says that combs so badly stained as to have the appearance of saffron should be thrown into grade M. I should say, throw them into the sun extractor. That would simplify matters a little. On page 22 a writer says that color and flavor should not be considered. The color of the honey is well enough, until it gets too dark, then it becomes sun-extractor grade; but flavor, I think, should be considered. The flavor is what sells the honey to the consumer. I have seen comb honey that looked as sweet and innocent as a sleeping babe; but one section of it was sufficient to break up the happiness of a whole family: the flavor was *bad*. Some thought the simple statement did not do it justice, and used more words to express themselves; but it was all in regard to the flavor.

On page 43 a writer says: "All combs containing much pollen, or that are badly travel-stained, or otherwise objectionable," (can he mean worse?) should be placed in grade M. Now, I think that, instead of having a grade for such honey, we had better have a class for such producers. I think that a bee-man who produces such comb honey should either revise his methods or be classed as an "old sock," and be set back about thirty years, where he could produce that good old-fashioned article called *strained* honey.

W. C. Frazier, on page 93, gives us the best plan of all so far. Now, if any one can make that any more simple, or shorten it in any way, he will be doing a real service. It comes pretty near the mark. But I should like to see it scaled down to two grades for market and one for the sun extractor; for instance, all the combs that were good enough so that the producer can put his name on them and guarantee them all right, should go as first-class; the second class should be honey that is good to eat, but not quite good-looking enough to go into the first class; should be sold on its merits for what it was worth; the rest should go into a nice warm sun extractor. But I want to say "kinder softly" to Bro. Frazier, that California produces considerable honey that would be classed as "Fancy A."

Some may say, "Oh! you bee-men away out there in great big California can make nice honey without any trouble; but it is different with us, as our seasons vary so." But, don't you believe it. If you were here you would get a chance every now and then to listen to a tale of woe from the California bee-keeper. If we could get the grading down so that two grades and a good sun extractor would do the business, it would be better for all hands.

Now, as I have dropped down rather hard on my friends in regard to pollen in the sections and travel-stained cappings, I want to say that, if your colony has a good queen and a proper hive there should be no pollen in the sections; and, again, if the sections are placed at the side of the brood, the cappings are very likely to be travel-stained; but if placed above the brood, and removed as soon as finished, they should be free from travel-stain. In working sections at the side of the brood-nest, the bees cluster on the sections nights and dull days, and that is what stains the cappings. A. B. MELLEN.

Acton, Cal., Feb. 27.

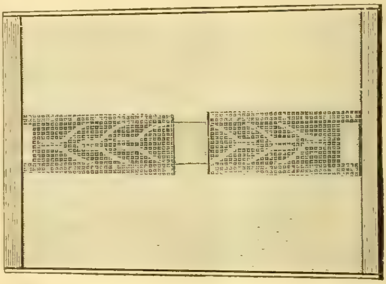
[We had decided, as announced in GLEANINGS, to call the discussion on "grading" at an end; but Dr. Miller protests, on the ground that the subject has not yet been sufficiently digested; perhaps he is right. We have concluded to reopen our columns for its further consideration, at least for one or two issues; and, besides, no one, till now, from California, the largest honey State in the Union, has taken hold of the subject, and that State should surely have a hearing, even at this late date. Yes, we should like to hear from more of 'em.

In our past discussions we have pulled the subject to pieces and viewed it piece by piece. Let us now come, as far as practicable, to a focus, and out of the several systems agree on one or at most two systems of grading. If further discussion will increase the number and variety of systems we had better stop where we are.]

THE COST OF PRODUCTION.

BEE-ESCAPES; BY J. H. LARRABEE.

As requested, I send you one of the bee-escapes that I have used for the past two seasons. It is not new in any point. I had seen Dibbern's, Reese's, and the old Porter, and decided to make some, as I had previously come to the conclusion that they were a success. You see, I had "tried it in my mind." I had on hand thin lumber of a certain width, and two of these widths were not wide enough for a whole board within about two inches; and as I laid the pieces upon an empty hive the idea occurred that this two-inch space was just what I wanted to put the escape in. The points about it that make it more effective than some of the other cone escapes I have seen are:



LARRABEE'S BEE-ESCAPE.

1. The three large cones are not easily clogged; 2. Plenty of ventilation to the super, thus preventing the excitement causing suffocation or gnawing of the cappings. The cost, you see, is almost nothing, and time in making it is about ten minutes. Like the new Porter or Dibbern's Little Giant it is a practical success. Brushing and shaking off bees is no longer done in freeing extracting supers; and when removing crates of sections the young bees are not crawling upon the honey-room floor or spotting the windows.

There is another subject upon which I wish to say a word. As you stated in your report of the Grand Rapids meeting, I made the assertion that I could care for 150 or 300 colonies, allowing half a day's labor to each colony, doing every thing from putting together of sections to crating the honey for market. As there was considerable discussion upon this point, and some seemed to think I had placed the estimate too low, perhaps it would be interesting to know how I would manage 150 colonies.

My bees are wintered out of doors in chaff hives, the brood-chambers of which are protected on top by a tray with cloth bottom, filled with chaff. On the first warm days of April I remove this tray, roll back the quilt, and see that each colony has a queen and stores. It is almost never necessary to remove a frame to ascertain either of these facts. If a queen is lacking I unite at evening, and if stores are lacking I remove one of the combs near the cluster and insert a frame of honey that I take care to have on hand. I am not stingy of honey, but see that they have enough to last till the harvest, and it takes lots of it at this time of the year. I go over the apiary in this way in a day. The next examination is made toward the first of May, when the tray of chaff is removed from the top of the frames and stored in a dry place, and the board cover placed on the brood-chamber. I keep an eye upon the condition of the bees at this time, to make sure that all have sufficient honey to last till the first of June. I also note any weak colonies for a little special care. At this time I slick up the apiary, remove and clean out combs and hives of colonies that may have died during winter, etc. This takes a couple of days more. About the middle of May I begin the business of preparing for the honey-harvest. In three weeks I have the foundation in sections, and in crates and frames in hives ready for swarms, though the work of preparing extra hives might be left out of the account, as no credit is given for value of increase. From the fifteenth of June to the twenty-fifth of July, my time is filled in with the work of the honey-harvest, putting on and removing sections, rearing queens, hiving swarms, and at morning and evening I find time to nail, paint, and repair, and bring up the odds and ends of work.

The most of my time after the fifteenth of July is devoted to preparing the honey for market; and along about the first of September another two weeks' work gets the average crop graded and into the shipping-crates. This gives me plenty of time remaining of the 75 days in which to prepare the bees for winter; and as they are in ten-frame hives, and have an abundance of good honey, this is not much of a job. The burlap covers and chaff crates I can put on in a day, and all is snug until next year.

It is by having a good convenient honey-house, an apiary of chaff hives, allowing plenty of room for good honey stores, and the practice of a definite system or plan of work, that I have done this. I am familiar with my hive, apparatus, and system, and there is something in this. We never have a fall honey-flow to a degree to make supers desirable.

In Pres. Taylor's estimate of cost of production, he allows only four dollars for the handling, from the hive to the honey-market, of each 1500 lbs. of honey. This seems to me too low. I should at least double it. For the New England markets, the sections must all be scraped, and the honey carefully graded and packed in crates with glass or in cartons, and neatly stenciled and marked, and this is necessary in order to get the 15 cents per pound of Mr. Taylor's estimate.

I believe that the most economical method of running an out-apiary is to cage the queen to prevent swarming. This seems as yet to be the only practical method unless some one watches for swarms. It is nice to run the out-apiary for extracted honey, and discouraging swarming by plenty of room. I understand that our friend Manum has secured the past season a good crop of comb honey from several apiaries, almost alone, on the caging plan. I am also looking with much interest for the article from friend Hilton upon this subject of cost of production. As I spent several days with Mr. H. after the State convention I had the opportunity of observing that he was careful and systematic, and that his methods were very similar to mine—so much so that he remarked we could not get into an argument.

J. H. LARRABEE.

Ag'l College, Mich., Jan. 20.

[We may explain, for the benefit of our readers, that our first knowledge of the Larrabee bee-escape came while we were in attendance at the convention of the Mich. State B. K. A. at Grand Rapids. When Mr. Larrabee explained the principle of it we were interested; and when he told us that his brother took off 3000 lbs. of extracted honey without so much as brushing a bee off the combs, we were elated. As you will remember, we asked one of the Larrabee boys to send us one of their escape-boards. They did so, and the engraving above illustrates somewhat the principle. We might add, that it is simply two boards cleated around on the sides, leaving a bee-space on one side. The boards are left about two inches apart, and on two sides are nailed strips of wire cloth, covering the opening as shown, the strips being of unequal length. Between the strips are two sets of three horizontal cones of wire cloth pointing in opposite directions as shown. The fact that bees have got to go through three cones is pretty good evidence that it would be quite unlikely for them to get back into the super; and then, the ventilation is perfect. As to whether the Larrabee escape will work as well as or better than the Porter remains to be proven. As Mr. L. says, it combines the old principles of the Reese and Dibbern escapes; but it seems to us in a very unique and practical manner.

In regard to the cost of honey, we regarded Mr. Larrabee's statement as being very conservative and fair. He uses in Vermont the large chaff hive, and these stand out both winter and summer, and they require but very little labor. That is one beauty in having chaff hives. They cost a little more, but they save a great deal of labor in springing and wintering in the way of moving in and out of the cellar and in hauling. There are some localities that are too cold for outdoor wintering of any kind, at least we are so informed; and for migratory bee-keeping or for any reason that the hives must be moved often, the chaff hive is undesirable. Our small Dovetailed chaff hive is an exception. It is but a trifle heavier than the single-walled hives, and is equally portable.]

PREVENTING PROPOLIS AND BURR-COMBS.

TALLOW AND VASELINE FOR THE PURPOSE.

I want some advice and help. We have been told for many years, that, if we rubbed tallow on the joints of our hives and other places where we did not want propolis to accumulate, the bees would not put it there. Now, I want to know whether there is any one who has tried it on a scale large enough to know whether it is practical or not. Some Englishman, I believe, has lately been recommending vaseline for the same purpose. Who has tried this? Does either of them, or any thing else, prevent propolis enough to make it profitable to use? It would be worth something to get rid of propolis where it is not wanted. It is for another purpose, though, that I think it might prove profitable to use the plan; that is, in the prevention of burr-combs.

Several years ago I made some frames to hold cages in which to put queen-cells for hatching in the hive. Wishing to have them as perfectly movable as possible, I rubbed them well with tallow. They have always been used in hives where all the other frames were covered with burr-combs; but on these no burr-combs have ever been built. I am certain from this that burr-combs might be prevented, at least to a very great extent, by rubbing the top-bars with tallow. It is possible that the bees might object to its use on a large scale, or it might lose its efficacy in time. I should be glad to have testimony on these points from any who have tried it enough to know. Vaseline, it seems to me, would be more apt to be objectionable to the bees. It would also cost more, though it would be easier to apply.

USING KEROSENE TO STOP ROBBING.

Some one has advised the use of vaseline, rubbing it on the alighting-board of the colony being robbed. A handier and cheaper thing to use for this purpose is kerosene. In robbing, as with all other evils, prevention is better than cure; but it will sometimes happen in all apiaries that the bees get to robbing. If the robbed colony is at all inclined to defend its hive, a simple contraction of the entrance, or almost any of the ordinary methods, may be sufficient; but often the robbed colony gives up completely, and makes no effort to keep the robbers from entering. In such cases, something must be done to take the place of their lost courage for a time. For this I have found kerosene very effectual, pouring a little of it on the alighting-board and around the entrance. Through this the robbers inside will pass out, but those returning will seldom make any attempt to enter. If any of the bees of the colony are out, they will usually go in all right after a little time, because it is their *home;* but the robbers do not.

It is best to contract the entrance, and in bad cases it may be well to renew the application after a time. Generally this is not necessary, and this feature makes the plan particularly valuable at an out-apiary, where one has not time to wait to see how a case of robbing is coming out, and does not wish to leave a colony with a too contracted entrance. At such a time the entrance may be somewhat obstructed with fresh grass, and kerosene sprinkled on this, and the colony left with confidence that it will come out all right, if it is not queenless or too weak to hold its own.

THE PORTER BEE-ESCAPE.

Those Canadians who are rumored to have decided against the Porter bee-escape on the ground that it tore the wings of the bees must certainly be mistaken. Some one has probably seen the old ragged-winged workers, which are to be found in all hives during the working season, and jumped at the conclusion that their wings had been torn by the springs of the escape. I have used a number of these escapes, and I never saw any thing of the kind, and I do not believe it possible.

PROPOLIZING PERFORATED ZINC.

I see that some of your correspondents have been troubled by the bees closing the perforations in queen-excluding zinc with propolis. Without knowing more of the facts it is impossible to say certainly why this should be so; but in all probability too much ventilation through the top of the hive is the cause. I have frequently known bees to close in this way the holes in the top of box hives that were intended to give entrance to the surplus apartment. I have also often known bees to use much labor and propolis in contracting an entrance that was too large to suit them. They would not use this at the entrance, though, where a comparatively small quantity would have sufficed, but attempted to build a wall with it some distance back, usually between the lower corners of the frames. It is generally only small colonies that do this, and their evident purpose is to shut out the drafts in order to better preserve the heat of the hive.

As long as the perforated zinc is used for its legitimate purpose as a division between the brood-chamber and the surplus apartment, the holes are not likely to be propolized; but when the bees are not occupying the supers, and the honey-board becomes practically the cover to the brood-chamber, their instinct leads them to close the openings in it if possible, especially if there is a large open space above, through which the air can circulate freely.

When the bees are not occupying the supers, the honey-board should be covered with a tight board, held a bee-space above the zinc, or it should be removed, and a board or cloth put in its place. J. A. GREEN.

Dayton, Ill.

RAISING QUEENS IN HIVES ALREADY CONTAINING A QUEEN.

DR. MILLER ANSWERS QUESTIONS.

This letter is anonymous; but there is no evidence that it is meant in any but good faith, and the subject is an interesting one and may be useful to others.

Dr. C. C. Miller: Will you please answer the following questions through GLEANINGS?

On page 333, 1890, you mention a way to have cells built by the bees, and have the queen fertilized when hatched. You say, " Let there be an entrance on top." Now, what I want to know is, if I do not make an entrance on top, but only the original entrance at bottom, can I raise cells, the cells to be cut out a few days before they hatch, and given to full colonies, as I wish to requeen all my hives? My bees are black, and show some trace of Italian stock, which I wish to get rid of and come back to the original black stock that I had years ago when I used to get honey. I used to raise what queens I wanted, by the nucleus system; but if I can raise them in full colonies without having the hives queenless, I think it would be better. The system you recommend seems to me to be really two distinct colonies. If I do not let them have two entrances, will the bees below go above and raise cells and really act as one colony?

A SUBSCRIBER TO GLEANINGS.

Yes, you can raise cells just as well without any entrance above, if you want to cut out the cells before they hatch. I think you may find the plan to succeed well sometimes and sometimes to fail. The first time I raised any cells in the way mentioned was in a hive over which I had placed three stories of empty combs to be taken care of by the bees. In order to make sure that the bees would traverse the entire lot, I put a frame of brood in the upper story. There was no queen-excluder, and nothing to hinder the two queens coming together except the fact that they were so far apart that it was easier for the young queen to use as an entrance the hole she found accidentally left above. This case was reported in GLEANINGS at the time, and I think it was the first case of the kind ever published.

No, there are not two colonies. I don't know just how much separation is needed, but it seems that, whenever there is young brood to be taken care of, and the queen does not have ready access to it, a certain amount of isolation will induce the bees to rear queen-cells, even if there is constant communication between the bees of the two parts.

I have not always succeeded in getting the bees to raise cells in a second story with an excluder between. But I'll give you a plan for raising cells that may almost always be depended upon, and you need no queen-excluder. Instead of a queen-excluder, put between the upper and lower story a quilt or sheet; if holes are torn in it, no matter. But there must be some place, at back, front, or side, for the bees to pass up through, and I don't know that it makes much difference whether a square inch is left for a passage, or ten inches. The point seems to be, that the cloth cuts off direct communication between the two stories better than the queen-excluder. If very much of an opening be left, the queen will sometimes go up into the upper story, especially if she hasn't all the room she wants below. Of course, when she goes up, the cells above will be destroyed, unless there is some intention to swarm; but in any case the bees will start cells below. So I have often left the colony in the upper story, and put only one comb of brood in the lower story, to find cells almost surely started below.

Now, some one will say that this is a good plan to have queens renewed—simply let the young queen hatch out and kill the old one. I've had no trouble in having the young queen hatch out, but in a few days she was always missing, and the old queen serenely maintained supremacy. With an excluder between, and an entrance for each queen, the case might be different.

You want to get rid of the trace of Italian blood. I wish I could swap for it the trace of black blood in some of my colonies, and have as pure Italians as some I had "years ago, when I used to get honey." But I'm afraid that, if you had the same pure blacks back, you'd find that they wouldn't give you a crop without a good season. We've had bad seasons lately. It is quite true that Italians have not secured crops; but I have no distinct recollection of reading about the blacks storing better crops than the Italians. C. C. MILLER.

Marengo, Ill., Mar. 17.

REPLIES TO INQUIRIES.

WEIGHT OF COLONIES.

Question.—What becomes of the difference between fall and spring weight of colonies, sometimes amounting to 20 to 25 pounds?

Answer.—Bees use honey largely as fuel during the winter season, in order that they may not freeze during the frigid weather of our northern localities. The natural food of the honey-bee contains the least possible amount of gross matter; and as bees do not take on fat and thereby increase in weight, the digestion of honey in the stomach of the bee is equivalent to combustion; or, in other words, the honey is burned up; hence as the ashes of burned fuel do not weigh anywhere near as much as the fuel did before burning, so the "ashes," or what is left in the intestines of the bees, weighs much less than did the honey consumed to keep up the fire. Again, much of the weight of the hive goes out by evaporation; and should the bees have a flight, more would go out by way of excrement, but not nearly as much by the latter as by the former. Honey being very free from nitrogenous matter, it is passed off in liquid or vaporous form by way of sensible and insensible perspiration and respiration, except the small amount to be found in the bodies of the bees. This is sometimes carried on to such an extent that water is often seen running out at the entrance of hives in winter. Some of the food is also used in producing muscular force; and as this force is constantly wearing out, the loss is perceptible in the food, while in the weight of the bees it is not seen. In all of the above we see the wisdom of Him who created our pets; for were it otherwise they could not stand the rigors of our northern latitudes at all, inasmuch as they are too cleanly to soil their hives, while the weather will not admit of their leaving them, often, for months in succession.

FEEDING BEES IN WINTER AND SPRING.

Question.—What is the best method of feeding a colony of bees that is found to be without food in the hive in midwinter or early spring?

Answer.—In the first place we should never allow our bees to be in this condition, for it is much more to our advantage, and to the advantage of the bees, to have sufficient food supplied them in the fall to last at least till the last month of spring, and I often think that, if enough is given to last till June it is all the better. The prudent apiarist will look over all his colonies in October, and see that *all* are abundantly supplied till the flowers bloom again. However, should such a thing as our pets being short of stores happen, through sickness or other adverse circumstances, the very best method of feeding them is to set in combs of sealed honey, as this places the bees in a natural condition and does not disturb them every little while, as most other modes of feeding do. If no combs of honey can be had, the next best way is to fill combs with good thick sugar syrup, when they are to be used in the same way the combs of sealed honey would be. In either case such combs of feed should be warmed for six hours or more before being placed in the hives; for, where combs of frozen honey are set next the bees, the colony is thrown into a state of excitement to warm this honey up to where they can safely cluster against it.

There is still another way of feeding which I like very well, especially if this feeding is done in the spring, and where I have on hand some extracted honey which has candied, which is as follows: Make a bag out of cheese-cloth, about six or eight inches square, or that much in diameter, after which partially fill it with the candied honey, which has previously been worked till it is quite soft, or it can be worked after it is placed in the bag. Don't fill the bag so but that it will assume a flat shape, for we wish to press it down right over the cluster of bees, so it can be covered over snugly with bee-quilts or old carpeting to keep in the heat. The bees will suck the feed through, and in process of time cut through the cloth so as to use it all up.

LOCATING AN APIARY.

Question.—Which is the better location for bees—one on low ground, where it is moist and frosty in the spring, but sheltered, or one on high ground, where it is free from dampness, but somewhat windy?

Answer.—If I could have my choice I would select neither. My choice would be midway on a moderate slope which faces the southeast. This would avoid the early spring frosts and the dampness of the low lands, and, to a large extent, the high winds of the elevated position, which are almost sure to prevail. To be sure, a windbreak can be constructed around the apiary on the high ground; but according to my experience, many bees are lost by being swept away on windy days upon rising above this inclosure into the cold blasts which blow about it, they being allured out by the calm and sunshine within. For this reason I would select the low ground in preference to the high, had I not the privilege of taking the intermediate one. If bees go out from the warmth caused by the mid-day sun shining in this low ground, they are not liable to be lost thereby; for when they rise high enough to strike the cold air from above they at once fall into the warm air below, so are not lost; then on the whole the temperature at the low location will average the warmest in early spring. G. M. DOOLITTLE.

Borodino, N. Y., Apr. 1.

TABULATED REPORT FROM FLORIDA.

THE HONEY RESOURCES OF THAT STATE.

I herewith send you my second annual report of the bee-keeping industry of our State. I have arranged it in a tabulated form for compactness and convenience. I have spent no little time and money in preparing the report, and have tried to have it as complete as

NAME AND ADDRESS.	Col's at date	Kind of Hive used.	Incr'se, % of	Plants from which the Honey mostly was taken.	Average Length of the Honey Season.	% of crop.	Lbs. of C H'y.	Lbs. of Extr'd.	Lbs. of Wax.
John Craycraft, Aster Park	20	Short L., 10 f.	—	Orange, palmetto, button-bush, grape.	March—July.	25	—	500	0
John Cross, Arcadia	35	Simplicity.	100	Palmetto, pennyroyal, oaks, etc.	February—May.	85	—	—	
J. B LaMontagne, Winter Park	24	Crosswise L.	50	Orange, palmetto, goldenrod.	Mar.—July; fall.	30	—	240	0
H. P. Williams, Richmond	13	Frame.	50	Orange.	Febru'y—March	50	—	—	—
A. W. Windhorst, Valrico	6	New Heddon	50	Orange, palmetto.	February—June.	75	150	100	5
Lewis James, Rock Bluff	75	Box.	50	No report.	May—June 30.	50	400	900	200
P. H. McKinley, Lisborn	110	Langstroth.	—	No report.	—		—	—	
W. B. Spearing, Punta Gorda	20	Simplicity.	—	Mangrove, fig, mastic.	April—Nov	—	1960	—	200
H. P. Goodrick, Geneva	21	S. and Mitc'l.	50	Orange, palmetto, gallberry.	Jan. 1—June 1.	—	—	1000	—
Henry Wadham, Braidentown	17	Langstroth.	10	Palmetto, mangrove.	7 months.	50	700	—	10
J. N. Allman, Osteen	8	Box.	50	Palmetto, dog-fennel.	May—Oct. 15	—	50	—	25
B. F. Blackburn, Osprey	10	Simplicity.	50	Orange, palmetto.	March July.	50	50		
C. A. Willard, City Point	15	Simplicity.	10	Orange, palmetto, bay-trees.	March—October.	100	500	—	
W. C. Larson, Cleaveland	12	Langstroth.	50	Saw-palmetto, bay.	May—July.	100	—	350	5
H. C. Hoven, St. Francis	6	Dove'd, 8-fr.	50	Orange, palmetto, gallberry, gold'rod.	May—Nov.			—	—
R. E Rawls, Peru	4	Simplicity	50	Orange, palmetto.	Mar.—May; Oct.	40	100	—	
Ira M. Parry, Sparr	26	S. and Dov'd.	400	Orange, palmetto.	Feb.—October.	—	100	—	0
J. M. Hassell, Narcoossee	30	Simplicity.	50	Bay, goldenrod.	Feb.—Apr.; fall.	100	100	1100	0
E. B. Plunket, Lake Worth	75	Langstroth.	25	Palmetto.	Whole year.	15		2000	0
H. F. Gifford, Narrows	33	Langstroth.	80	Palmetto, mangrove, pennyroyal.	6—10 months.	100	—	1500	6
J. D. H. Wien, Narrows	20	Langstroth.	50	Saw and cabbage palmetto, mangrove.	May—October.	75		693	-
Robt. Ayers Narrows	30	Simplicity.	—	Mangrove, saw and cabbage palmetto.	May—October.	—	—	—	—
R. A. Redd, Wewahitchka	450	Langstroth.	25	Tupelo, gum, snowvine.	April—Sept.	50	—	21600	1000
H. H Burges, Wewahitchka	33	Langstroth.	20	Tyty, tupelo, snowvine.	April—June.	80	—	1035	50
Alderman & Roberts, "	1300	Langstroth.	—	Tupelo, tyty, snowvine.	—		—	90000	
Miles Tanner, Sanford	25	Simplicity.	100	Orange, palmetto, goldenrod, wax-pl't	February—Nov.	25	200	400	20
E. A. Smith, De Land	2	Simplicity.	—	Palmetto, andromeda, gallberry.	March—July.	50	—	50	
W. B. Shotwell Denver	2	Mrs. Cotton's	—	Orange, palmetto.	March—June.	—	—	—	
J. L. Wolfenden, Evanston	75	Langstroth.	65	Orange.	March and Apr.	25	600		0
H. B. Pryor, Apalachicola	136	Langstroth.	40	Black gum, tupelo, grape.	Mar. 15—June 1.	65	600	4000	175
Jos. Costello, Ellenton	38	Simplicity.	50	Gallberry, saw and cabbage palmetto.	April—July 15.	60	—	1000	20
J. B. Holley, Blownstown	45	Langstroth.	66	Tyty, snowvine, tupelo.	Mar. 10—July 1.	80	150	1525	96
Mrs. J. A. McMillan, Ft. Read	90	Simplicity.	75	Orange, palmetto goldenrod.	February—Nov.	25	200	800	50
Dr. A. A. Alston, St. Augustine	2	Simplicity.	—	Orange, palmetto, etc.	January—Oct.	—	—	—	
J. M. Webb Titusville	90	Simplicity.	5	Saw palmetto, sea grape.	May 1—June 15	75	—	5200	30
John S. Womble, Oviedo	60	L., ½-story.	100	Orange, palmetto, bay, goldenrod.	March—Nov.	95	—	—	30
C. W. Jones, Ponce Park	16	Langstroth.	100	Palmetto, black mangrove.	May 10—July 20.	—	200	1600	45
C. F. Hochstein, President City	14	New Hedd'n.	175	Orange, palmetto.	February—June.	50	450		20
G. W. King, Orchid	120	Simplicity.	100	Palmetto, mangrove.	May—August.	70	—	2500	
J. P. Murdock, Oxford	17	Langstroth.	100	Orange, palm'o, partridge-pea, go'rod.	February—Nov.	100	500		10
A. Langot, Alva	30	Langstroth.	—	Pennyroyal, saw palmetto.	February—June.	10		500	25
Mrs. M. D. Perley, Orange City	50	Langstroth.	7	Orange.	March, April.	—		500	
J. W. Anderson, Bay Ridge.	6	Simplicity.	100	Not reported.	March—July	25	125		10
Ch. Holmes, Leroy	8	Simplicity.		Orange.					6
Fr. Trueblood, Archer	60	L. and N. H.	25	Orange, gallberry, partridge-pea.	April—October.	100	200	1300	25
W. Morris, Archer	18	Langstroth.	50	Orange, partridge-pea, gallberry.	April—October.	50	500	—	10
J. Bogue, Archer	16	Langstroth.		Partridge-pea, gallberry, orange.	April—October.	—	—	—	
N. McPherson, Tallahassee	10	Box.	—	Cotton, corn, fall flowers.	July—Sept.	—	30	60	12
W. B. Radford Tallahassee	4	Box.	—	No report.			—	—	
G. H. Maginnis, Tallahassee	11	Langstroth.	50	No report.	March—Sept.	—	100		8
C. Norman, St. Petersburg	9	Quinby.	300	Orange, palmetto.	February—Nov.		—	—	
Miss Fay Moffett, St Peters'g	40	Simplicity.	100	Orange, palmetto, mangrove.	February—July.	65	600	120	
W. J. Drumright, Sara Sota	40	Simplicity.	33	Saw-palmetto.	Apr. 20—June 20.	100	400	1700	40
S. C Corwin, Sara Sota	60	S. and Dov'd		Gallberry, palmetto.	Apr. 20—June 20.	60	600	3000	60
J. F Vorn, Hudnal	20	Langstroth.	50	Gallberry, orange, palmetto.	Feb. 1—May 20.	25		—	—
J. N. Harris, Charlotte Harbor	190	Langstroth.	60	Pennyroyal, saw-palmetto.	February—June.	25	—	2800	40
I Martin, Charlotte Harbor	20	Box.	—	Pennyroyal, saw-palmetto.	February—June.	—	200	—	—
W. M. Brantley, Sorrento	10	Simplicity.	50	Palmetto, basswood.	—	50	—	—	
G. W Chapman, Venice	8	Eight-frame.	33	Saw and cabbage palmetto.	April—July.	—	40	—	
L. J. Knight, Venice	5	Eight frame.	30	Mangrove, palmetto.	May 30—Sept. 30.	50	125	—	5
J. H. Hill, Venice	35	Simplicity.	20	Palmetto, mangrove.	May 30—Sept. 30	10	—	300	10
J. J. Knight, Venice	5	Simplicity.	50	Palmetto, mangrove.	May 30—Sept. 30	10	—	—	—
F W. Hunt, Ocala	20	Simplicity.	100	Orange, fruit-bloom, goldenrod.	May—Nov.		—		10
W. A. Richards, Ocala	3	Simplicity.	100	Orange, fruit-bloom, goldenrod.	May—Nov.		—	—	
M. B. Daniels, St. Lucie	7	Box.	—	Palmetto pennyroyal, etc.	Whole year.	—		—	—
W. M. Crutcher, Zellwood	5	Frame.	150	Orange, palmetto.	March—July.	—	—	—	
W. Heartman, Citra	35	Simplicity.	—	Orange.	February—Apr.	—	—	—	5
A. E Saeger, Ankona	1	Box.	—	Palmetto, pennyroyal, etc.	Whole year.	—	—	—	
Dr. H Stites, Palm Beach	7	Frame	—	Palmetto mostly.	Whole year.	—	—	—	
J A. Webbs, Pinial	10	Langstroth.	—	Orange, palmetto.	March—June.	100	100	150	10
G. W. Waters Electra	8	Box.	—	Palmetto, orange, jessamine.	Whole year.	—	150	—	5
H. M. Morris, Electra	12	Box.	—	Orange, palmetto, jessamine.	Whole year.	—	—	—	
S. P. Halley, Electra	14	Box.	—	Jessamine, palmetto, orange.	Whole year.	—	—	—	
J. A. Williams, Ft. Ogden	5	Box.	25	Orange, palmetto, fall flowers.	February June.	50	100	—	50
T M. Adams, Oak Hill.	46	Langstroth	15	Black mangrove.	June 15 July 15.	20	—	800	30
W. S. Hart, Hawks Park	122	Langstroth.	4	Palmetto, gallberry, mangrove.	May 10—Aug. 1.	3		900	-
H. M Mitchell, Hawks Park.	28	Dovetailed.	400	Gallberry, mangrove, palmetto.	May 10—Aug. 1.				—
W. B. Wilkinson, Hawks Park	75	Simplicity.	10	Saw-palmetto, mangrove.	May 10—Aug. 1.	25	—	2600	20
E. M. Storer, Hawks Park	140	Langstroth.		Mangrove, saw-palmetto.	June 20—Aug. 10.	50	—	12000	30
A. B. Wilkinson, Hawks Park	8	Simplicity.	50	Saw-palmetto, mangrove.	May 15—July 30.	—	—	200	5
Capt. Barber, Hawks Park	40	Simplicity.	—	Mangrove, saw-palmetto.	May 15—July 30.	50	—		—
O. O. Poppleton, Hawks Park	39	Long-Idea.	50	Saw-palmetto, mangrove.	June 1—Aug. 1.	75	—	4850	50
A. W. Sargent, Hawks Park	16	Simplicity.	15	Mangrove, saw-palmetto.	June 1—Aug. 1.			500	0
E. A Marsh, New Smyrna	95	Simplicity.	—	Black mangrove.	June 1—Aug. 1.			2000	30
E. G. Hewitt, New Smyrna	40	Simplicity.	—	Black mangrove.	June 1—Aug. 1.	25			
J. F. Packwood, Hawks Park	46	Simplicity.	—	Black mangrove.	June 1—Aug. 1.	—	-	3000	
E. J. Moore, Hawks Park	150	Simplicity.	-	Black mangrove.	June 1—Aug. 1.	-			
O. Olson, Hawks Park	150	Simplicity.	—	Black mangrove.	June 1—Aug. 1.				
Dr. Bevell, Hawks Park	40	Simplicity.	—	Black mangrove.	June 1—Aug. 1.	25			
J. B. Case, Port Orange	80	Langstroth.	100	Gallberry, palmetto, basswood.	Feb.—June 10.	—	20	2180	15
P. W. Johnson, Port Orange	40	Langstroth.	33	Orange, palmetto, mangrove.	Feb.—June 10.	25	—	900	20
H. H. Robinson, Port Orange	40	Langstroth.	15	Palmetto, red bay, mangrove.	February—Aug.	—	—	600	12
E. J. Baird, Orlando	9	Simplicity.	90	Orange, palmetto, fall flowers.	Feb.—May; fall.	50	150		—
C. A. Brown, Orlando	12	Simplicity	200	Palmetto, orange, fall flowers.	Feb.—May; fall	50	200	—	
J. K. Duke, Orlando	7	American.	100	Pink root, palmetto, fall flowers.	Feb.—May; fall		—		
A. F. Brown Huntington	82	Dixie.	33	Orange, palmetto.	Mar. 1—June 1.	25	200	1140	25
F. W. Savage, Eustis	10	Simplicity.	50	Palmetto, orange.	Mar. 1—June 1.	—	250	50	
T. A. Poole, Eustis	10	Simplicity.	150	Orange, palmetto.	February—May.	50	50	100	0
A. C. Hart, Eustis	10	Simplicity.	25	Palmetto, orange.	February—May.	—	50	200	0
W. W. Jones, Candler	7	Dovetailed.	75	Orange, deletrie.	Six weeks.	—	—		—
C. D. Sutton, Candler	2	Frame.	—	Palmetto, orange.	Four months.	—	40	—	—
W. J. Westover, Candler	8	Dovetailed.	100	Saw palmetto.	April—June.	60	250	-	4
B. B Barnur, Eureka	0		—	Palmetto, partridge pea, etc.	March frost.	2000	—		
J. J Brinson, Eureka.	50	Box.	—	Partridge-pea, palmetto etc.	March—frost.	2000	—		
I. B. Brinson, Eureka	25	Box.	—	Palmetto, partridge-pea, etc.	March—frost.	2000	—	-	-
A. M. Browning, Eureka	12	Box.		Partridge-pea, palmetto, etc.	March—frost.	2000	—	-	100
Gus. Wills, Eureka	50	Box.		Palmetto, partridge-pea, etc.	March—frost.	2000	-	-	
Allen Cotton, Eureka.	5	Box.		Partridge-pea, palmetto, etc.	March—frost.	2000	—	-	-
M. Harrison, Eureka	5	Box.		Palmetto, partridge-pea, etc.	March—frost.	2000	-		-
F. Raulerford, Crescent City	12	L. Cotton.	25	Orange, palmetto, gallberry.	Mar.—May 30.	25	—		—
Benj. Smith, Hudnal	14	Frame.	-	Gallberry, palmetto, orange.	Mar.—May 30.	25	—	—	
Total	5305		Av. 56%				13540	180543	2669

possible; but owing to many of the friends not answering all the questions it is rather hard to summarize it as a whole. I sent out some 500 printed blanks on postal cards; but with this convenience only about one-fifth of the friends replied; and this, too, when I know from private letters that a good many of them had secured very fair crops. From information thus gained I estimate the number of colonies in the State at about 12,000 and the honey crop at 500,000 lbs. for the past year. On the Apalachicola River there are over 3000 colonies not listed in the report, and these men have all secured from 60 to 90 per cent of a full crop. I have not tested them, for the reason I have not received personal reports from each, only an estimate from one or two in each district.

In summing up the report we find: 1. That 110 persons report a total of 5305 colonies, an average of about 48 colonies to each; 2. That 37 per cent of the bee-keepers use the Simplicity hive; 28 per cent the Langstroth; 16 per cent box hives and 30 per cent miscellaneous makes; 3 That 86 report on increase an average of 56 per cent; 4. That the main surplus honey comes from orange, gallberry, tyty, tupelo, snowvine, black gum, saw and cabbage palmetto, black mangrove, pennyroyal, goldenrod, and partridge pea; 5. That there is surplus during nealy every month in the year in some locations, and that we can take two or more crops during a year by moving our colonies to such locations; 6. That 66 report that an average of 56 per cent of a full crop was secured by them; 7. 76 report from 4402 colonies 13,540 pounds of comb and 180,543 pounds of extracted honey, making a total of 194,043 pounds, or an average of about 44 pounds to the colony; 8. 48 report 2669 lbs. of wax; 9. (not in report), that from 500 blanks sent out to the bee-keepers of our State I have been able to obtain only 110 responses, as given above.

Hoping the above report will be of some value to you, my friends, the coming season, and that I may again hear from you, I am your obedient servant, A. F. Brown.

Huntington, Fla., Feb. 21.

[Perhaps some of our readers may think we are giving a good deal of space for the statistics of one State. However that may be, we give the room in order to show how the work may be done, and to give a better idea of the real honey resources of Florida. While we may not be able in the future to publish these State statistics in full, we shall be glad to publish the summaries giving the gist of the whole matter. We hope, therefore, that other States will follow suit. If California bee-keepers would get up statistics as complete as these, we should be glad to publish the entire report, even if it took several pages. Such a report would be valuable, coming from the greatest honey region of the world.]

PAINT FOR BEE-HIVES.

THE BEST PAINT; PRIMING COATS; HOW TO DETECT ADULTERATION IN PAINT, ETC.

By Ernest R. Root.

We have already given some hints in regard to the most durable paint for bee-hives; but during the last few months we have been collecting material from various sources, and are now in position to offer some information that may be valuable to our readers, now that we are about to enter upon spring weather, when the bee-keeper may have time to paint some of his hives that may be sadly in need of it.

It is a well-known fact among painters, that yellow French ocher gives a very permanent covering, especially for priming coats. Ocher would doubtless supersede even white lead were it not that its color is against it. It is also stated that a priming coat of ocher presents such a hard surface that a covering of lead does not adhere so well as it does to a priming coat of lead. A few years ago nearly all the priming was done with yellow ocher; but it was discovered that the later coats of lead would flake off; so generally, now, for house-painting, pure lead for a priming coat is preferred, providing it can be obtained. But we shall have occasion to speak of adulterated leads further on. It is generally acknowledged that French ocher combines very readily with lead, and the combination makes a more durable paint than even pure lead; but, unfortunately, so-called pure leads are fearfully adulterated. Dealers get to cutting on prices, and manufacturers are tempted to put in barytes, lime, and other cheap ingredients, which, instead of adding to the permanence of the paint, work in an inverse ratio. The result is, that some of these adulterated lead paints show a very poor surface in a couple of years. The paint either flakes off or rubs off like chalk.

Besides pure lead, and genuine yellow French ocher, pure zinc is another good body for paint. The addition of zinc—at least a small proportion does not generally affect the durable qualities of paint. Pure zinc paint alone gives a very hard, snow-white, porcelain finish. For inside white it is generally employed; but for outside work it is too hard and flakes off. Our painters, however, tell us that, while pure lead and pure ocher give a most lasting combination, the paint may be cheapened by the addition of a little zinc; and this will, at the same time, give it a valuable quality in point of hardness, and prevent inclination toward chalking off. We are now using on our hives a combination made up as follows: ⅓ pure lead, ⅓ pure zinc, ⅓ genuine French ocher, mixed in pure unboiled or raw linseed oil. Such a combination is cheaper than a great many of the so-called mixed paints on the market—cheaper because it goes further, and because it will last much longer. It has all the valuable qualities of the zinc, the ocher, and the lead; and the resultant shade is a light straw color. For bee-hives it is undesirable, on account of melting down the combs from the sun's heat, to use dark shades. Theoretically, snow-white paint would be preferable; but in actual practice the light straw yellow will do about as well as the white.

Now a word about buying paints. It is to be regretted that so many manufacturers of white paint label their paint "Strictly Pure." If you consult any practical painter he will put you in possession of tables containing analyses of all the paints in the market—analyses that show the amount of adulteration and pure lead sent out by each manufacturer. If dealers and consumers alike could only understand that pure lead, or pure lead and zinc, is a great deal cheaper in the long run, they would not try to be buying their paint wherever they could do so for the lowest figure. It is the consumers who have to suffer, and some cheap paints are very dear at any price.

Besides the adulterations which do not in the least add to the good quality of paint, fish and mineral oils are used instead of pure linseed oil. Painters generally agree that there is nothing like pure linseed oil for paint. All other oils are practically worse than nothing. They are a snare and a delusion, and only reveal the true nature of the paint after it has been on the wood for a few months.

Very fortunately there is a simple way of detecting adulterations in paint. Any thing but linseed oil can usually be detected by the smell. Fish oil has a very rank, sickening odor. Barytes and lime can usually be detected in the following way: Buy a small can of the lead that you propose using with your ocher or zinc, as the case may be. Scoop out a little of it and put it in an empty tin can; pour on top turpentine. Mix thoroughly by stirring, and then allow this to stand for 24 or 48 hours. At the expiration of this time, pour off the top; and if barytes or lime is used you will find a sort of dry powder in the bottom of the can, that has failed to unite with the oil. This lime or barytes is a positive detriment; and the only reason it is put in is because it cheapens the lead. If, on the other hand, after making the test as above, you find no chalky residue in the bottom of the can, you may feel pretty sure that your lead is pure, or, at least, has nothing worse in it than an addition of zinc, which will not hurt it. Genuine French ocher, on the other hand, combines perfectly with the lead or zinc, and leaves no residue.

There is another very simple test, though perhaps not so positive in its results. Dip your thumb and finger into pure white-lead paste and rub them vigorously together for four or five minutes. If the paint is made of pure lead and linseed oil, or of pure lead, ocher, and linseed oil, a rubbing of the fingers for four or five minutes will still leave only a soft oily residue. If, on the other hand, the paint is adulterated with barytes or lime, two or three minutes' rubbing will reveal a sort of dry powder between the thumb and finger. Linseed oil combines perfectly with lead, zinc, and ocher, but it will not combine with lime, barytes, or chalk, and hence the fraud is easily detected.

Perhaps we might state, while we are about it, that there are on the market what are called white and gray ochers. We would warn bee-beepers to let these alone. The only reason they are called "ocher" is because the general public understand that ocher paints—at least the yellow ocher—is known to be durable when spread upon the wood. We have tested some white ochers; and while we could not tell exactly, we felt pretty sure they were made up of barytes, lime, and clay. Gray ocher is, perhaps, a little better; but it does not begin to have the qualities of the yellow ocher.

While we are about it, we might add that Venetian red also makes another durable body when combined with pure linseed oil. Its color, however, is against it. You can get a very pretty and durable red by mixing pure French ocher and Venetian red, half and half. Such a red will not deteriorate into a dull brownish red, but will remain of a bright glossy color. We use such a paint on our outside winter cases, or on any thing that is not to be used for summer use. We also use it on hive-stands. The bright-red hive-stands and the straw color of the hives make a very pretty combination in an apiary.

It may be also stated that dark shades are apt to burn off more by the effect of the sun than the lighter shades.

We have thought best to make some extracts from the readings we have made. They not only confirm in some cases what we have said, but they will be found to give other additional facts.

IMPORTANCE OF GOOD PAINT.

We are probably more indebted to paint than to any other article for the preservation of surfaces that are exposed to the elements; and it is therefore desirable to use only the best. Notwithstanding the experiments and trials that have been made with other materials, thus far nothing has been found to take the place of white lead (carbonate of lead) and linseed oil. Owing to the high cost of these articles other metals have been repeatedly tried, and even more extended experiments have been made to substitute some other oil for linseed, but without success, and they still hold their supremacy for painting purposes. The carbonate of lead contains, in addition to the metallic lead, a certain percentage of carbon and oxygen, and just sufficient hydrogen to give it the proper spreading quality. Linseed oil also contains carbon, oxygen, and hydrogen, and hence its affinity for the lead, causing the two to unite perfectly. The natural formation of carbonate of lead, however, is such that it has a tendency to chalk off; and the more advanced authorities in paints employ the use of zinc oxide to correct this tendency; and experience has proven that this combination of lead and zinc insures a more durable paint than lead alone.

As white paint is more subject to being soiled from dust, smoke, etc. (the favorite painting materials are in colors), the most durable colors are the iron oxides; but these are usually too dark in color to be pleasing to the eye. Chromates of lead, i. e., yellow and green, are used largely in varying tints and shades. Combinations of different pigments are used in almost endless variations. Probably there is no color that is more of a favorite, however, than ocher; and as it combines perfectly with white lead, it makes a good paint. Ocher is a substance, the best grades of which are found in France. It is composed of alumina, silica, and hydrated oxide of iron. From the latter it obtains its peculiar rich yellow color. Many pleasing tints are made by combining ocher with white lead; and although it may not perhaps be indorsed by the æsthetic as the color "par excellence," it is always a reliable and favorite color, and is more largely used than any other color of its class.—*From the Forest City Paint Co., Cleveland, Ohio.*

THE PRIMING COAT.

Many painters do not give much attention to this most important of all coats. They seem to think and act as if any thing were good enough for a primer. We have frequently seen odds and ends in the slush-tub furnish the material for priming; and if for any reason a lot of paint is condemned as unfit for finishing coats, it is reserved and thought to be good enough for first coat.

It is, however, of the utmost importance that the priming receive the greatest attention and care, as, if it is neglected, the whole superadded coats are bound to be defective. It matters little how good these may be, nor how careful the workmanship; there can not but be trouble in view in the near future.

Wood, it will be noticed, is composed of bundles of thread-like filaments; where these filaments have been sawed through, they present the appearance of pores. Under microscopic examination it will be found that there is considerable space between the filaments, and that they are not solidly laid against one another. These interstices it is that the primer is called upon to fill. The primer will be found to have little bits of roots, which form clinchers. These clinchers have a great hold upon the wood, and it is of the utmost importance that both the pigment and the vehicle be of the best quality and of the proper nature.

The vehicle should be raw linseed oil, for this penetrates much further than the boiled will, and for that reason the latter should not be employed.

Earth colors containing considerable silica which have been very finely ground are the most useful pigments for priming, and the ochers for that reason are the best of all these. They contain considerable silica, and have great body besides. The addition of a quarter to a third by weight of white lead is an improvement, as the paint is then more porous and the next coat can penetrate through it.

Never use a dry ocher unground for priming, as the particles are much too coarse and can not enter into the pores. Have only careful, reliable men to apply it, as it must be thoroughly brushed in to get well worked in, and we know that there is no class of work that is slighted more than this is in the workmanship. Any thing in the shape of paint, and anybody to put it on, won't do.

Zinc should never be used in priming, for the reason that the tendency of zinc is to peel off; and we have frequently seen it do so where it had been used as a primer; even the rootlets formed by the entering of the primer into the pores are drawn out from this. For this reason, then, zinc should be discarded altogether for a primer.

Too great a body is not desirable in a primer; and, while both the ochers and white lead are heavy bodied, they must be thinned down with the vehicle until they are very thin. *F. Maire, in House Painting and Decorating.*

In mixing car colors of a light shade, or straw colors, we find that a pure white lead is first necessary, which should be tinted with the best French ocher and English chrome yellow. This will make the most durable color for car bodies; the chrome is permanent when mixed with lead almost as much so as the best ochers; but it is far superior in body and covering properties, and one of the most useful pigments in the paint-shop. White lead alone will change from its original whiteness in case it is mixed with a surplus of oil; it is the oil which changes it to a yellow cast as it hardens in drying; but when lead is mixed with some other strong pigment, its color when thus tinted is more permanent, and its density and wearing qualities are increased. The durability of a color we do not claim to be altogether in the pigment employed, but it is equally so in the vehicles used in its preparation for use; therefore lead, which is known to retain oil the best, will hold the color longer.

Painting is put to the severest test on our passenger cars, and its destruction is caused by a constant exposure to the elements and the changes of atmosphere, from a dry, burning heat through the day to a heavy moisture at night, which the painted surface absorbs in large quantities, to be dried out again, the same process going on day after day. But perhaps it is, as I have heard expressed by members, that the foreman painter is not consulted in regard to the color of the car. This is generally decided by those who know nothing of the general adaptability of a paint to the work. Freaks of fancy have too often determined what the color of the car should be, with no thought given or questions asked of those who are expected to know the difference in the lasting qualities of a color, nor is the question considered whether the color would wear six or twelve months. Would it not, therefore, be economy to ascertain what amount of wear is in a color before it is finally adopted as the standard of the road?

Our arguments in favor of the light colors will probably not change the views of the officers of our roads. They may, however, find the matter worthy of their attention, and, to test it for themselves, have one coach painted any light shade, and put it in service with a car painted Pullman color or Tuscan red, when twelve months' service will prove what I have already asserted, that light colors are the first step toward economy in the car-painting department of a road. *R. McKeon, in The Painter, for Nov., 1884.*

After complaining what others have said about *honey* being adulterated, it might look as if we were going a little fast when we intimate that *paint* is also. Prof. Cook has said, and no doubt correctly, that it is almost impossible to tell by analysis whether honey is adulterated or not. In fact, he sent samples of pure honey, taken from the hives of the college apiary, to Prof. Wiley, of Washington. Prof. Wiley, after analysis, pronounced them all adulterated. The wily professor no doubt thought that they were, *of course*, adulterated or they wouldn't have been sent; and when he saw the expected chemical reactions, he jumped to the conclusion that the samples were necessarily impure. Fortunately, adulterations in paint are very easily detected. We have given two very simple methods that will answer for the practical bee-keeper or painter; but the chemist can analyze and determine the exact amount of each foreign article in paint to a certainty. All minerals are very easily analyzed, and the chemical reactions are distinct and positive.

Perhaps we ought to say that we are largely indebted to our painter, Mr. John Iper, of this place, for the information that we have been enabled to give above. It was he also who furnished us the articles from his trade-journals, from which we made selections.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

DEATH OF COUNT C. BIANCONCINI.

It is with much regret that we chronicle the death of Chas. Bianconcini. We copy the following short sketch from the *British Bee Journal* for March 17:

> With Italy we have also to deplore the loss by death of Count Charles Bianconcini, of Bologna, whose name is well known the world over as one of the leading queen-breeders of Italy. Count Bianconcini was brought up as an engineer, and served his country in the artillery, from which he retired with the rank of captain. He was not only passionately fond of bee-keeping, but was also a thorough gentleman, and his strict integrity won for him the esteem of all who knew him or had any business transactions with him. In his business dealings he was most honorable and obliging, and those who have had dealings with him have always spoken in the highest praise of his queens. Foul brood does not exist in the district where Count Bianconcini resided, therefore there was no fear of importing this disease with queens sent from his apiary. He was also equally well known as an agriculturist. Our relations with him have been of the pleasantest; and the editor of the *Revue Internationale*, writing about him, says that, after fifteen years of the most agreeable intercourse, he can affirm that not one of his immense circle of customers has had to complain about him. His loss will be sorely felt in Italy, where his reputation was as good as it was abroad.

[For the last six or eight years we bought all our queens from Italy of Bianconcini. They were uniformly good, and gave excellent satisfaction to our customers. His business relations with us were also of the pleasantest; and as a bee-keeper and queen-breeder he stood high. We are happy to announce that his business will be carried on by his daughter, Miss E. Bianconcini, Bologna, Italy. She no doubt has been her father's best assistant in the apiary, and will therefore be fully able to sustain the reputation of her father. We expect to give her our patronage, and would respectfully refer others to her.] E. R. R.

POISONOUS HONEY.

I have a young man living with me who has lived all his life in northeast Tennessee. He says every one keeps bees there; besides, the woods are full of wild bees, but he never saw a bee on what is called mountain laurel there, and he don't believe they can work on it on account of the sticky nature of the blossoms; but they *do* work, in times of scarcity, on a small evergreen shrub called ivy in his locality, (may it not be confounded with the laurel in some other locality, as happens with other plants?) and what honey they store while it is in bloom is dangerous. He has been very sick from eating it, and knows a number of other cases, and one child died. The bees never seemed to do well when they had any of this honey in their stores. The symptoms of poison, as he gives them, are similar to those given by Dr. Grammer, in the A B C.

I looked through my apiary yesterday. The Italians (Root's and Nebel's stock) are in fine shape—lots of bees and stores, and a good bit of brood; but the blacks are in rather poor shape; did not feed up well last fall. Give me Italians every time. They are the "hustlers."

Parker, Kan., Mar. 29. J. W. GROVE.

A LETTER FROM CUBA.

Friend Ernest:—I notice in GLEANINGS of Feb. 1st that you think your father is coming to Florida, and might *possibly* come to Cuba. Well, we Cubans will just be delighted if he will consent to come—I mean the bee-keeping fraternity. This is not only a honey country, but a mass of flowery vegetation, with sugar-plantations, miles wide, dotted here and there with enormous sugar-factories, and the climate is just delightful from October until May. The place to take the boat would be at Tampa, Fla., there being a line of elegant steamers that run from Tampa to Havana, a distance of 320 miles. The run is made in about 24 hours, with a small stop at the charming city of Key West, Fla., which has a population of about 20,000. It would be best to write to Dr. James Warner, Havana, about three days before your father takes the boat at Tampa, so as to meet him at the boat-landing in Havana, for every one speaks Spanish, and possibly he might be annoyed. Dr. Warner lives in Havana, and is quite an extensive bee-keeper. Mr. Casanova is living here, and he is a fond lover of bees, and, besides, owns one of the finest sugar-plantations in Cuba, as well as a fine new sugar-factory, and he too would be very glad to have the honor of entertaining Mr. Root. With the hope that we Cuban bee-keepers will be honored by Mr. Root's visit to our land of palms,

I am sincerely yours,
F. O. Somerford.

San Miguel, Cuba, Feb. 14.

[Many thanks, friend S., for your very kind invitation; but, as I have before explained, you will have to wait until some future time before we make that pleasant visit. I assure you that your kind invitation has done us both a great deal of good. The fact of having such friends away off in Cuba is of itself worth a good deal.] A. I. R.

PORTER'S BEE-ESCAPES ARE A GREAT SUCCESS.

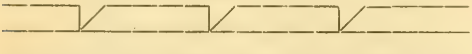
In an editorial in Gleanings of March 1, the editor asks any one in a position to know, whether the rumor that he heard was true, that a Canadian association of bee-keepers condemned the Porter bee-escapes, saying that they tore the wings of the bees. No; that rumor has no foundation whatever, and no Canadian association of bee-keepers did or could be got to condemn the Porter bee-escapes, because, wherever any bee-keeper in Canada has tried the Porter escape, he speaks of them with unlimited praise. If any one will tear one of the Porter escapes open and examine it he will be convinced at once that they could not in any way injure a single bee. No bee-keeper on this orb of ours should be without more or less of Porter's very valuable escapes. They are one of the best things ever brought into any apiary, and they should be used in every bee-yard in the whole wide world.

Wm. McEvoy, *Foul-brood Inspector*.

Woodburn, Ont., Can., Mar. 14.

A SUGGESTION.

To meet the objection of Mr. Walrath, to V'ing the sides of the end-bars of the Hoffman frame why not make the V by cutting the wood away all on the outside thus:



This leaves the inside next to the bees smooth. But the frames would have to be all square and close-fitting in the hive; *i. e.*, have no end play, else the sharp edge of the end-bar would not always touch its adjoining bar. Perhaps by leaving the point of the V $\frac{1}{16}$ inch thick would make it work. E. H. Whitaker.

LaSalle, Ill., Feb. 24.

[Your sharp edges would be impracticable for the very reason that in practice it is impossible to avoid all end play; and when there is end play, the sharp edges would slide by the square edge, and thus destroy the function of accurate spacing. Even if the hives and frames are made ever so nice, moist and dry weather would make it impossible to get the frames down in the rabbets.]

SEVERE WINTER LOSSES; CONDITION OF MY BEES.

The honey-dew is doing its best in this part of Uncle Sam's domain. When I go down into my bee-cellar the odor is dreadful; the floor (made of cement), barrels, boxes, shelves, every thing, are covered with dead bees, and soiled. Over half of them are dead; the other half, or one-third left, will be in such a dilapidated condition that, if they will not die before long, there surely will not be a pound of surplus this coming season. They had a good fly one afternoon, three or four weeks ago, and were put back into the cellar the same evening. I also had standing out two in Roe's chaff hives. Both are dead. My neighbor is about as badly off; two-thirds of his bees are also gone, and that means no sections or bee-supplies for us this year. The bee-paper is the only thing that will still flourish. Wm. Moershel.

Homestead, Iowa, March 22.

ONE-THIRD MORE HONEY TO WINTER OUTDOORS THAN INDOORS.

I find that it is taking a third more honey to winter bees outdoors than it does in the cellar. Those in the cellar used one pound of honey in 15 days, or very near that, while those in single-walled hives, out of doors, used a pound in 10 days or on that average, for the last 90 days.

Charles White.

Farmers Valley, Neb., Feb. 15.

A PLEA FOR THE BLACK BEE.

Has the black bee no friends, that we see nothing in its favor? For years I purchased Italian queens, and had my apiary well Italianized; but the winters of Northern New York seemed too much for them, and my bees are now all natives; and I believe that, in this location, if a man had an apiary of fifty colonies, and forty were Italians and ten black, at the end of ten years there would not be an Italian left.

Woodville, N. Y., Mar. 9. W. Van Auken.

SMALL APIARIES FOR EXTRACTED OR COMB HONEY.

Would it pay to buy an extractor where one has only 8 or 10 hives of bees? and which stands pay most, those run for comb honey or for extracted? What proportion would you advise to run for comb honey, and what for extracted?

Weldon, Ark., Mar. 3. E. W. Johnson.

[If you have only a few colonies you had better run them all for comb honey.]

ALFALFA, AND WHEN CUT FOR HAY.

On page 115 of Gleanings we read that alfalfa cut for hay is cut before it blooms sufficiently to produce honey. I would not give much for that hay. In this country it produces honey for a while before it is cut, but not as long, of course, when cut for hay as if cut for seed.

Last, Cal., Mar. 27. W. A. H. Gilstrap.

A CHEAP PACKAGE FOR EXTRACTED HONEY.

Candy-pails for honey I find are the best and cheapest thing for extracted honey. When the honey granulates they can be shipped everywhere. My bees are wintering well.

Cokato, Minn., Mar. 21. Fayette Lee.

NOTES OF TRAVEL

FROM A. I. ROOT.

When a railroad goes over the mountains it almost invariably runs up a canyon, and, as a matter of saving expense, the builders take advantage of every depression; therefore when you go over or through mountains on the cars you can not get a view of the world below at all, for you simply see out of the car-window the sides of the canyon; and when you reach the summit and go through a pass, this also is a depression, and seldom gives any view whatever of the valley below. There are some partial exceptions to this rule when the road goes up the *side* of the mountain (like the trail on Wilson's Peak), but not many; and it seems to me, too, that one must go at least part of the way on foot to enjoy thoroughly the mountain scenery. To get health and enjoyment there must be a certain amount of enthusiasm. How shall we get it? I have been thinking a good deal of this lately while writing these papers. Some may say they have not naturally the imaginative disposition that furnishes these "flights." In fact, Mrs. Root has said the same thing a good many times; but she has enjoyed the mountain scenery almost as much as I have. Now, please have faith in your old friend when he tells you *how* to have enthusiasm. Ask God to give it you. Ask him to give you love for and enthusiasm in your daily tasks. Keep praying; and before you know it your prayer will be answered. One element of enthusiasm is a clear conscience — a conscience void of offense toward God or man. I do not see how one can make any real prayer without this. So if you undertake to pray, your inconsistency will rise up before you — that is, if there *be* any inconsistency. Now, don't keep it back if it wants to come. Let the still small voice speak; and when it tells you when you have wronged a neighbor, stop praying right square off. Go and make it right with him; return that borrowed tool, or pay him for the damage you have done it; then, and not before, finish your prayer. Is not this almost exactly what the Savior said? See:

TUNNELING FOR WATER AT EATON CANYON, AT THE FOOT OF MT. WILSON.

> "Therefore if thou bring thy gift to the altar, and there rememberest that thy brother hath aught against thee, leave there thy gift before the altar, and go thy way; first be reconciled to thy brother, and then come and offer thy gift."—
> MATT. 5:23, 24.

Then shall you have enthusiasm; and with the enthusiasm shall come a love for wholesome exercise; and with exercise and a clear conscience shall come health.

I have before mentioned the picnic dinner we had at the foot of Mt. Wilson, after our trip down. You know I mentioned also how I envied people who could drink all the pure water they wanted, at any time and on any occasion. Now, the water that supplies the beautiful city of Pasadena comes from a mountain stream that tumbles down this same Eaton Canyon; and as the waterworks is somewhat extensive and complicated, an old gentleman remains there constantly as superintendent of the works. He seemed glad to see company, and pointed out to us the best drinking-water. I drank considerable—I do not remember just how much; and as it did not produce any disagreeable effect at all, at dinnertime I drank a tremendous quantity of lemonade. Friend Stevenson and Miss McClurkin assured us the lemonade was first class, because they picked the lemons from a tree that grew in their own dooryard. The boys that were along declare that I drank *twelve glasses;* but I think *they* must have been in a hurry to get a dozen: besides, the glass was not a very large one, and probably it "slopped over" a little in filling it up. No matter; I did drink just all I wanted of lemonade and spring water all that afternoon, and rejoiced to feel that I was a well man, especially in this one respect. The enthusiasm and almost constant perspiration probably had much to do with it. You know I have had much to say about doctoring without medicine. Well, here is another weakening and distressing malady cured without *any medicine at all*, unless we call God's pure air, sunshine, spring water, and mountain scenery "medicines."

I was quite curious about the irrigating machinery, and the old engineer seemed quite glad and willing to tell us all about it. A great iron pipe, I should think six inches in diameter, for it looked like a small stovepipe, ran along the sides of the canyon and up the mountain until it reached the spring, 160 feet higher up. This gave an immense pressure, you will notice. Now, this great pressure was utilized in working a sort of injector, using water under pressure instead of steam, of course. Well, this force was made to raise water from another spring or springs lower down in the canyon; that is, this force raised water without any pressure, so as to deliver it into the irrigating canal that supplies the city. The engineer receives a certain salary to remain at his post and look after the waterworks. If I understand it, he was to work at something else or not, just as he chooses. Well, he is a man after my own heart, in that he does not like to be idle; so, just for the fun of it he made a tunnel into the side of the mountain, working at it during his leisure hours. The cut on p. 291 shows some of his work. There was originally a crack or fissure in the rock. With a pick and shovel he made the opening larger, so that one could go in and out without trouble, standing up. I snapped the Kodak on it, and friend Stevenson stood by the side of the opening so as to give one an idea of the size of things. There is a little stream of water that comes out under the plank that runs in at the entrance. After our friend got a little way into the rock he found it so much softer that he could dig it with comparative ease, and with a narrow wheelbarrow he ran out the debris and made a very pretty walk along by the side of the stream of water. He had run his cave in about 100 feet, and he was quite anxious that the whole party should go in to see his work. We were already warm and perspiring from our exercise in climbing; and when we found that this cave grew warmer and warmer, until at the extreme end it was almost like an oven, the party began to protest —especially the women-folks, and we hustled back for the open air faster than we went in. The tin cup at the entrance looked so inviting that we passed it eagerly from one to the other to get a drink of these wonderful waters. Of course, a "tenderfoot" would expect to get *cool* water as it issued from the rocky mountain-side; but the water from this particular tunnel was of about the temperature of common dishwater. Of course, no one said any thing, but passed the cup along for each one to drink. Springs of water are like mines of gold, in California; and our old friend was quite enthusiastic in telling us how to locate springs. He says if you can find a fissure in the rock, or if it is only a crack or crevice, if you follow the fissure into the mountain or hill until you strike the bottom of it you will surely find a stream of water. He says he never knew it to fail.

There is one thing about our trip up Eaton Canyon I thought I wouldn't tell of; but as there is a moral to it, perhaps I had better, after all. Up the rough and stony mountain stream, over perhaps a mile of hard climbing, there is a beautiful fall. After we got there the boys spent quite a little time in fixing the stones so that they could stand near the fall while I took a Kodak view. When all was ready I snapped the machine, telling them that I had got a nice view, and then we trudged back again. When almost back to the carriage I discovered that I had omitted to remove the plug that covers the lens of the Kodak. In a letter just received from friend Stevenson, he adds the following in regard to it:

Friend Root:—Don't forget to give in Gleanings the picture you took of the falls in Eaton Canyon.
Pasadena, Cal., March 25. W. Stevenson.

Not only are the streets and buildings of Los Angeles superior, but the parks that grace many parts of the city, and the beautiful dooryards and gardens, present a spectacle with their semi-tropic vegetation that is almost overpowering to one unused to such a scene. Our first morning in the city was after what might be called a summer shower; and Mrs. Root's enthusiasm at the sight of what constantly met our view in some portions of the city was almost too great for words. Adjoining this we give you one sketch as an illustration. The palms and palmettos will be recognized by all of our readers, from having seen them in greenhouses and at expositions. The tall treelike object in the center of the picture is the dried blossom-stem of the century-plant. These run up twenty or thirty feet in only a few weeks' time. The great quantity of vegetable matter accumulated in the leaves during years of growth seems to expend itself suddenly in the one last effort to produce blossoms and seeds. The plant itself seems to be something on the plan of the modern storage battery, only that it accumulates for years just for the one grand *finale* of a few weeks. I was told several times that the century-plant bears considerable quantities of honey; but I don't think it will be worth while just yet to advertise the seeds for sale as one of our *honey-plants*. The plant dies after this wonderful effort to blossom and make the seed.

Jan. 23d we bade adieu to the beautiful city of Los Angeles. It certainly is at the present time the cleanest and prettiest city I have ever set foot in. The streets are broad and regular, and the buildings are fine. Every night, after traffic has ceased, a number of great carpet-sweepers ("carpet-sweepers" drawn by horses) go over the whole of the paved streets and sweep them almost as clean as the floor of a room. Then immense sprinklers lay the dust, what there is left, so you can cross anywhere without soiling the most delicate shoe. The various shopkeepers, as a rule, sweep the walks in front of their stores so as to have them in keeping; and, altogether, one is tempted to think it some fairy land where "shines undimmed one blissful day." The people are also nice and accommodating, and there is also a very strong Christian element pervading all classes. Some of you may think I am humbugged by glitter and outside show. I am well aware; but, dear friends, I *know* there is at least *much* that is genuine. I presume likely I am of late leaning a good deal toward that little virtue that "thinketh no evil;" but I believe it is through the influence of the Holy Spirit I have been praying for that helps me to see and to find goodness and purity everywhere.

After reading the above to Mrs. Root she says it is all right except the great amount of tobacco-juice spattered on those beautiful clean pavements in Los Angeles very soon after they are so nicely swept. I hope her suggestion may be copied in some of the Los Angeles papers, and

SOMETHING LIKE WHAT MRS. ROOT SAW WHEN SHE FIRST LOOKED ABOUT THROUGH THE SUBURBS OF LOS ANGELES.

that the gentle reproof may suggest the idea of dropping this offensive liquid over the curbstone into the gutter, instead of on the beautiful clean walk.

The city of San Diego is, in many respects, like Los Angeles, but is not building up at the present time. During the three years since I visited it before, it has suffered pretty severely in consequence of being "boomed" to an extent it would not bear. Houses in the suburbs are deserted and empty, and many fine blocks in the heart of the city are unoccupied. A storeroom that used to rent for $150 per year now brings only *$30*. With its beautiful climate and magnificent harbor I can not quite understand why this is so; but I presume it is because so few are really engaged in farming, manufacturing, etc. The Christian element seems active; and when the people get over waiting for a chance for speculation, or for some opportunity of getting money from a fresh "tenderfoot," I predict great things for San Diego.

OURSELVES AND OUR NEIGHBORS.

If any of you lack wisdom, let him ask of God.—JAMES 1:5.

I have been familiar with the above text for many years; but it is not till within a few weeks that I really understood it; or, perhaps I should say, within a few weeks past a new application of it has come to me; and it has helped me so much I want to tell you about it. For many years I have been in the habit of praying for wisdom in a general way. I have admired that little prayer of Solomon's, wherein he asked for *wisdom* rather than riches, long life, and victory over his enemies. I have prayed in that way for wisdom. But some way the subject has seemed too wide for me, and too general. Now for the new application. It is this: When we come to a point where we are undecided what is best to do, especially at times when we feel that we are just a little out of the influences of the Holy Spirit, *then* is the time to make a practical use of the text. Stop right where you are; and, if it be practicable, get away by yourself alone in your closet, and on bended knee ask God for wisdom to decide in regard to this *special matter* that is before you. It may be well enough to pray for wisdom in a general way in your morning devotions, for this, of course, is all right and proper; but the new point is to me, to ask God for just what you want in the line of wisdom at the very time you feel the lack, exactly as you would go for a crowbar to move a weight that you could not move by unaided human strength. And I have often felt that prayer should be one of the tools that a Christian workman uses to get along nicely with his work. Perhaps the first essential to use this prayer in the way I have indicated is to feel your own weakness. A couple of lines in a familiar hymn read:

I am weak but thou art mighty;
Hold me with thy powerful hand.

And that is what we need to feel, and we need to feel it oftener. Especially do those who are in authority need this little prayer in the way I have mentioned—a teacher in the public schools, a public officer, a ticket agent (oh how I do wish we had more ticket agents and conductors who are Christians!), one who has charge of men, a minister of the gospel—yes, most emphatically do ministers of the gospel need to pray for wisdom, not only every hour, but sometimes almost every minute. We pray for the influences of the Holy Spirit in a general way; yet how frequently, when an issue lies right before us, and we are compelled to decide one way or another, we find to our consternation that the Holy Spirit seems to have deserted us. Then Satan whispers, "Circumstances alter cases," or something of that sort, and we decide hastily, and then suffer the pangs of remorse of conscience afterward. In the line of our text, if a matter is to be decided, and it is something involving the comfort and happiness of individuals, by far the better way is to ask a little time to think the matter over. If you are talking with a professing Christian, you need not hesitate to say, "Dear brother, before I decide in regard to this matter I should like to have a little time to consider it, and to pray over it; and I wish you too would think of it and pray over it. If we both do this, the Master whom we both love and try to serve will surely lead us to decisions which shall not be very widely different." Oh what a world this would be if even professing Christians through all their intercourse would do this! I know that some of you will say that many professing Christians would pray over it and decide in a selfish way just as if they hadn't prayed over it at all. Well, now, let us not be too hard on our *neighbors*, but let us come back to our *homes* and *ourselves*. Who has not tried to pray over some quarrel or disagreement, but even while praying has felt that self was crowding so hard to be uppermost, it was almost impossible to give an unbiased opinion? I have myself prayed as I thought quite earnestly, to let the Holy Spirit rule and decide; but as my mind went back to the matter in question, self and selfish interests pushed and crowded so strongly that there was not very much Holy Spirit about it. In fact, when I undertook to write on this text I felt such a sense of my own unworthiness that it seemed almost a shame for one who "practices" so poorly what he "preaches," to undertake to *teach* at all. Nevertheless, I have been helped a great deal in just the way I have tried to tell.

In the first place, we want to recognize that human wisdom is so insignificant compared with God's wisdom that it is hardly worth considering. "As the heavens are higher than the earth, so are my ways higher than your ways, and my thoughts than your thoughts."

Now, the great point is to realize this: That human wisdom unaided is exceedingly faulty. We are biased and prejudiced, even the best of us, by so many circumstances and conditions, that, without this cleansing power of the Holy Spirit, we are totally unfit to decide any thing for the public good. Let us once feel that, and feel the necessity of wisdom from on high, and we are making great progress. Now, this may sound like riddles or enigmas to some of you. Does God really speak now as he did in olden time, and tell us what to do or what to say? Yes, my friends, in one sense he does; but now please don't think that I am going into something visionary or untangible. The religion of the present day is a matter of *plain, simple common sense*, and nothing more; and herein comes in another thing that it took me a great while to learn: How does any one know whether God is speaking, or whether it is an impulse from the evil one himself? Why, by applying a simple rule of common sense and nothing more. The whole wide world recognizes a Christian spirit; and small boys on the streets will tell you pretty clearly what is Christianity and what is not. When the report has gone around that a man has "got religion," even these same small boys on the street have a pretty clear and distinct idea of how the man should *act* after he has got religion. Perhaps some of you remember a story that I have told before. After a revival meeting in our town it was talked on the streets that Mr. —— got religion the night before. One of the small boys declared very vehemently that it was not so; and when questioned as to why he did not believe that Mr. —— had got religion he said, "Because I saw him go down street a few minutes ago, and he had a cigar in his mouth." A crowd of other small boys—street Arabs they might be called stood by; and when they heard his statement, not one of them disputed it. Without discussing the tobacco question here, every small boy seemed to have a clearly defined conviction in his mind that the man who got religion the night before would not go down street smoking a cigar the next morning. Well, now, the same kind of logic or reasoning will tell what the influences of the Holy Spirit would be, or, if you choose, what kind of fruit such influences should bear. One of the first requisites in letting God speak through us, and in letting the Holy Spirit decide matters, is that we avoid haste and precipitation. When you are getting into a bad frame of mind, or when you feel that Satan's promptings are coming pretty thick and fast, you must stop and tell your companion something like this: "I hope you will excuse me, neighbor Jones, but I think we had both better stop right here and take this matter up some other time." If you have the strength of character to do this, you are a pretty safe man. You know what my favorite text says, for I have repeated it often enough: "He that overcometh, and keepeth my works unto the end, to him will I give power over the nations."

Sometimes after waiting an hour you will feel so differently about the matter under discussion that it will astonish you. If, however, you are greatly stirred up by something that has been on your mind a long while, it may take several days to put self down out of the way so that the Holy Spirit can speak to you clearly, telling you what a Christian ought to do. Now look out for a stubborn spirit that is very likely to come in. This stubborn spirit will say something like this: "Can't help it; Christianity or no Christianity, I am not going to be run over in that sort of way by anybody." Look out for all such promptings and counsel as this. It comes from the evil one. I do not mean, mind you, that you are always to submit to be run over; for my experience is, that a consistent Christian is less likely to be run over than almost anybody else. The man who is quiet and cool, and never raises his voice above its ordinary tenor, is the one whom people respect. It is the man who gets to talking loud, and attracting the attention of the passersby with his quarrels and jangles who is most sure to be run over at every turn.

In olden time the prophets prefaced their utterances with a "thus saith the Lord." I do not suppose that the Holy Spirit speaks to us now in just the same way that it did then; but if we think coolly and calmly, with no selfish schemes or feelings in our hearts, but, rather, a feeling of peace and good will toward all mankind, we can be pretty sure to know just what the Holy Spirit would say on almost every occasion. It does not take more than a quarter of a minute to decide what *you* would like to do under the circumstances; but it may take us several hours to fight down selfish impulses so that we can hear clearly and plainly a "thus saith the Lord" in regard to difficult and troublesome matters. Perhaps the greatest obstacle in the way of receiving and acting upon this wisdom that comes from the Holy Spirit is selfishness and self-interest. I have read of some great man who had such a high temper that sometimes he would go off by himself and wrestle with it as he would wrestle with some wild animal. Some of you may smile at such an illustration; but the very man who thinks there is no wild animal inside of him to be whipped and put down is the very man who is dangerous.

Now in conclusion let me urge the importance of my exhortation to-day in a financial point of view. The whole wide world is hunting and clamoring for trusty men—not only men who are honest in dollars and cents, but men who can be relied upon to be cool and steady—always alike—men who will not kick over their whole former record by a bit of foolishness now and then; men who have wisdom to look ahead and see what is coming, and be ready for it. In short, the world wants men of *wisdom*, and it is ready to pay big prices for them when they are found. A collegiate course of study usually gives this sort of wisdom; and men spend long years in the springtime of life that they may acquire this mental drill. And sometimes even *then* they forget the great promise in our little text—"If any of you lack wisdom, let him ask of God, who giveth to all men liberally, and upbraideth not; and it shall be given him."

Let me now repeat once more the principal points of this talk: Ask God for wisdom, just exactly as you would go for a bucket of water to put out a fire. You can not carry a bucket of water with you all the while, neither can you very well provide each morning the water that may be needed during the day. May be you will not need any water at all; perhaps you will need something else; but when you see that water is *needed*, go at once for *water*. When you see that a particular kind of wisdom is needed, go for *that* wisdom, and go straight to the *great Father above* who gave us the promise. Of course, there are emergencies where one can not go off alone. For instance, a neighbor is whipping a horse unmercifully. Unaided human wisdom would be quite likely to say, "Mr. Brown, if you strike that horse another blow I will have you prosecuted." May be you have tried that way of doing. If you have, perhaps you have seen a quarrel between two neighbors, instead of a quarrel between a man and a horse; and I think we should always remember that a man is of many times more value than a horse —not that I mean to excuse cruelty to animals, by any means. In such an emergency as the above, if there is not any time to do any thing more I would breathe the little prayer that I have so often mentioned—"Lord, help." Then I would, if possible, get up near the neighbor who is whipping the horse. There is great gain in coming close to a man. It is like pulling a heavy load. If you want a team to move it, you must have it close up. The very fact of your coming up to him at such a time will usually induce him to slack up a little and think. Besides, by the time you get there you can have time to listen for words of wisdom from on high; and the promptings of the Holy Spirit, or this divine wisdom, will probably be something like this: "Neighbor Brown, I fear you are whipping that horse a little harder than you know. Hadn't you better wait a little until you and he both get a little cooled off?" By the time you have got thus far the prayer you have breathed will have enabled you to have a pleasant, good-natured look on your face, and may be a smile as your neighbor looks at you to see whether *you* are mad and excited too. A little practice in this kind of work helps one wonderfully. And then comes victory. "He that ruleth his own spirit is greater than he that taketh a city." Now, then, dear brother, the next time you feel like saying to yourself, "Oh I wish I knew just *what* to do in this matter!" please remember what your old friend has said. If it is a matter that has been on your mind several days, I would advise you to get up in the morning before anybody else is stirring. Then go off by yourself and pray for wisdom. It need not be a long prayer unless you feel that there are a good many things you wish to tell the dear Savior about it. Don't forget, I beg of you, to pray for all parties that take any part in the matter that troubles you. If there is anybody in the question whom you do not *feel* like praying for, this is the first thing to be got out of the way. "If I regard iniquity in my heart, the Lord will not hear me." And, again, the Savior says, "Love your enemies; do good to them that hate you, and *pray* for them that despitefully use you." So the first part of your prayer will probably be to get *self* down and out of the way. You want first to learn to *love* your enemies, and to pray for them and resolve to do them good. This word "good" used in this sense is to be interpreted by this same Holy Spirit. Instead of getting revenge on an opponent the thought must constantly be before you that you are trying to make him *better*, and, above all things, to lead him to Christ Jesus. Unless you can do this you need not go any further with your praying. No wisdom will be given you, and no victory will come, until you have mastered *selfish* feelings as I have mentioned; but after having done this, oh what a broad grand universe opens before you! It is exactly like climbing the mountains—you have got above earthly storms and passions, and are looking abroad through a heavenly region. Now, remember the promise—"If any man lack wisdom, let him ask of God, who giveth to all men liberally, and upbraideth not; and it *shall* be given him."

HIGH-PRESSURE GARDENING.

BY A. I. ROOT.

THE PRIZETAKER AND SPANISH KING ONIONS.

Friend Root:—In our test of 1890 we had the Spanish King from Henderson and the Prizetaker from Maule. These two onions were so near alike that no one could see any difference, so we pronounced them the same; but in the test of 1891 we had the Spanish King from Johnson & Stokes, Currie Bros., and Leonard, and the Prizetaker from Maule. The Spanish King from Johnson & Stokes and Currie Bros. were nearly alike, but were uneven, and mixed with red onions. The Spanish King from Leonard was a long, pointed onion, and rotted badly before it was pulled, and was not much good. The Prizetaker resembled the first two, but was much larger and more even, with scarcely any mixture of any other onions. But the most noticeable difference was in the tops, the Prizetaker having a different shade of green from any other onion that we had. Now, to answer the question directly, "Are the Prizetaker and Spanish King the same?" I will say that I think they *should* be, but what they are depends on circumstances.

I know of no kind of vegetable seed that vary so greatly from year to year, and from different seedsmen, as do the foreign varieties of onion. Each year sees some new names added, an old one taken off, while the mixture of English and Italian and other foreign names makes the thing confusing. This, I think, is due to the fact that the seed is all (or nearly all) imported, and the seedsman is only a customer, and is not sure what the seed is until he sees it growing, and he has to depend on the reliability of the grower for good stock. I think that, when there gets to be a larger demand for these varieties of onions, the seedsman will have the seed grown under his own supervision, and then it will be more uniform. We also received an onion under the name of Yellow Globe Spanish that was nearly equal to the Prizetaker. The Yellow Rocca also resembled it very much. I think that, in the onions I have mentioned, there is not much more variation, with the one exception, than there is found in the Yellow Danvers from different seedsmen, but perhaps this may be putting it pretty strong; but there is a great deal of difference in the Yellow Danvers when received from different sources.

E. C. Green.

Agricultural Experiment Sta., Columbus.

[Thank you, friend G. It turns out just about as I had expected; and why in the world we shouldn't grow seed here as well as they do in foreign countries, is strange to me. By the way, I have just picked out a lot of Spanish onions from the Cleveland market—great big handsome bulbs, with very small, insignificant necks. These are hard, firm onions, now in the middle of April, and we have planted them out in order that we may raise some seed ourselves. In regard to this matter of seed, you know there has been quite a little complaint lately of celery that would send up seed-stalks instead of making celery. We have recently had the same complaint with carrots. A great many would send up a seed-stalk without making a root of any account. Can the matter be remedied? I will give you just one thing that I know about it. H. A. March had this same trouble; and to see what he could do he wintered over some nice large stalks of celery, and raised seed from them. The result was, that not a stalk ran up to seed in a whole acre. I saw the celery myself. And this is what he did after just once trying. Suppose he had saved the seed from one of these celery plants that sends up a seed-stalk the very first thing—what would the result have been? A great many of our Spanish King onions had great big necks and comparatively small bulbs. As we had no particular use for these we left them in the ground and they all wintered over nicely, and are now commencing to grow. We propose to bunch them up and sell them for green onions just before they start to go to seed. If they should, however, repent of their "evil ways," and start in this year to make a large onion, why, of course we will let them do so.]

THE AMERICAN PEARL ONION.

Although we have had a winter of unusual severity, the American Pearl has once more wintered nicely—that is, sets that were put out in September so as to make a good growth before winter, all came through. Where they were not planted out till October or later, many of them were thrown out of the ground. As an experiment we sowed some seed of the American Pearl some time in July. When we put out the sets as mentioned above, we also put out onion-plants from these seeds. The plants were, perhaps, as large as a leadpencil, with a bulb on the bottom about the size of ordinary sets. These, too, have wintered perfectly; hence I conclude that the American Pearl, either from seed sown in July or from sets planted in September, if they make a growth so as to get well rooted, they will winter over safely in ordinary winters. We tested quite a number of other onion-sets in the same way. Some of them wintered partly—others almost not at all. The Spanish King came out very well. By the way, we have also wintered over cold-frame onion-plants about the size to be planted out. These had no covering except a little straw. Most of them are all right. By the aid of sash they could, without question, be wintered as we winter cold-frame cabbage-plants.

EGYPTIAN, OR WINTER ONION.

You may remember that I mentioned last season that some of our Egyptian sets on our very rich market-garden ground grew to be almost the size of hens' eggs. Of course, we could not sell such sets; and as I didn't know what else to do with them, we planted them in a row about six inches apart. What do you think they did? Why, they straightway split themselves up into little bulbs like potato onions; and now we have a wonderful growth of large green tops and beautiful bunch onions from six to twelve in a bunch. One of these large sets produced 14 fair-sized onions. This Egyptian onion is perhaps the hardiest vegetable we have any thing to do with. It will grow, and look green and bright, at a temperature between 40 and 50. In fact, they have already made a wonderful growth this spring while scarcely any thing else has made a start. The demand for sets has been beyond the supply again; and, by the way, this onion may be divided and planted at *any time* of the year when the ground is not frozen. In fact, you can pull sets from the tops of the onions at almost any stage of growth, and put them in the ground and they will send out roots, and grow. There is something wonderful about this onion-plant and its many divisions and subdivisions. You know I have been talking about writing an onion-book. Well, what I have learned about onions already would make a very fair-sized book; but the more I study it, the more I begin to think that what I *don't* know about onions would make a still bigger book. To one who loves to study God through his works, this subject of getting thoroughly acquainted with and following out the peculiarities and possibilities of even a single *garden vegetable* is, at least to me, exceedingly fascinating. More than that, a rich reward in dollars and cents is pretty sure to pay the one who gets thoroughly acquainted with any line of plants so as to understand what they may be made to do.

PLANT-BEDS WITH SASH, SHUTTERS, AND COTTON CLOTH.

On page 784, Oct. 1, 1891, I described an arrangement of a series of hot-beds with places to put the sash at either end. I want to say that we find it in our work now a perfect success. We have just had quite a little freeze, and every thing in the way of sash was scraped up to cover the plants. After the sash was exhausted we used all the wooden shutters, even dilapidated and broken ones. Then we took cotton cloth for the hardier plants in place of either sash or shutters. The cloth was held fast at the upper or northern side by a pole, and then another pole was put on the south or lower edge to roll it up on, exactly as friend Day does it with his tomato-beds. It has answered nicely; and although we have had some tremendous winds, a heavy rain, and an inch or two of snow, the cloth has answered the purpose perfectly. My opinion is now, that "high-pressure gardening" is to be done largely in these beds. Not only can vegetable-plants be raised at a profit, but last season we raised extra early corn, early potatoes, snap beans, cabbages, and a great variety of other crops not usually put in cold-frames, and we got prices that paid expenses too. Some of you may be inclined to laugh about growing corn in a hot-bed or cold-frame. The corn was planted the last of February, the kernels being put in just ten inches apart. Glass was used over them at first; but when the stalks got so they crowded against the glass they were protected by shutters or cloth. Every stalk gave an ear—sometimes two—even though planted so close, for the ground was very rich, mind you. We started it at 25 cents per dozen ears, thinking that was all our people would pay, but corn grown in the open air a few weeks after that *also* brought 25 cents, because the people had got a little educated to paying that price. Now, I am not sure but they would have given 50 cents a dozen for at least quite a little of it, because it was quite a novelty from the fact that it was started under glass. There is a big field for work here, friends, if you really love the business and enjoy fighting the frost, ice, and piercing winds. The fighting is to be done by these same plant-beds, with glass, shutters, and cloth.

GLEANINGS IN
BEE CULTURE
A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS
Illustrated SEMI-MONTHLY
36 PAGES 7×10
$1.00 PER YEAR

The testimony of the Lord is sure, making wise the simple.—PSALM 19: 7.

SINCE we have had so many testimonies in favor of sealed covers we have had quite a number of letters for upward ventilation and absorbing cushions. In our next issue we will publish a few of them. We hope that none of our friends will imagine that a sealed-cover is so near and dear to our heart that we can not listen to arguments against it.

WE have long needed a United States law for the suppression of adulteration of foods. There is now a pure-food bill before Congress, with a probability of its passing. We understand it has already passed the Senate, and we hope its friends, including Mr. Paddock who introduced it, will be successful in having it become a law. The main feature of the bill is to prevent the sale of adulterated foods in other States than those in which they are mixed. This, we think, will be quite a check upon the nefarious business, and we hope every subscriber will write to his representative, urging the importance of the passage of this good law. Just at this time bee-keepers need it.

DR. MILLER asks, in Stray Straws, how we succeeded in imbedding the wires in foundation by means of electricity, the electricity heating the wire from end to end, so that it will melt into the wax. We were not quite ready yet to report, but perhaps we might say this: We succeeded partially, and are certain that, with the proper battery power, we could imbed and make a nice job. We do not feel so positive, however, that it will pay. Batteries—at least the direct-current or primary type—are expensive, and require to be renewed often. Storage (or secondary) batteries will answer nicely, but they are still more expensive, and require to be stored up with the invisible fluid from some electric-power station. For the average bee-keeper these are not available. It remains for us now to prove whether it *can* be done; and if so, whether it can be done profitably.

IN response to our call for reports as to how bees are wintering throughout the country, about 200 bee-keepers have, up to date, Apr. 12, responded. The reports show that bees, with very few exceptions, have wintered exceptionally well. About a third of the number report no loss, and the remaining two-thirds show from 95 to 98 per cent as the number that have wintered. There are only three or four who report below 60 per cent. The losses, where they have occurred, have been principally in

Iowa, Western Illinois, and Northern Michigan. In answer to the second question, "How does their condition compare with former years?" most of them report "much better."

AT Medina, out of a total of 200 wintered outdoors we have lost only 3, making our per cent stand 98½. One was in a winter case, another in a chaff hive, and another in the house apiary. By the way, the few colonies in the house apiary fared very much worse than those outdoors. During the first week in April brood-rearing outdoors seemed to be progressing finely; but during the last few days a cold spell has set in. What effect this will have in killing off unsealed larvæ we do not know.

THE phonograph is proving to be a grand success in our office. By its aid one typewriter operator is enabled to do the work of nearly two. In fact, one of our girls now transcribes with the talking-machine all the correspondence of E. R. and J. T. C. On the old stenographic dictation plan she had all she could do to handle Mr. C.'s correspondence alone. We suppose the reason why the phonograph is not generally used in offices is because business men who would use them for dictation are not sufficiently expert in handling electrical machinery. The phonograph is, in fact, simpler than a sewing-machine; but it is so new and so different, that, when a thing gets "out of kilter," the average business man, instead of trying to fuss to get it in order, will give it up and go back to the old way. The day must surely come when the phonograph will be used exclusively in all offices where large correspondence is carried on wholly through dictation. It should be stated that the phono-graphophone has not yet proven to be a success; but the Edison phonograph has with us—at least so far.

A NEW POULTRY-BOOK.

IT would seem that the poultry-book business is already overdone; but recently there has come to our table an excellent book entitled "The Chicken Business, and How to Make it Pay;" by H. B. Geer, of Nashville, Tenn., a well-known poultryman, as some of you may know. So far as we have been able to examine it, it gleams with experience. From the preface we quote: "This book is written by a practical poultryman for practical people, and with no attempt at fine style or language;" and such, evidently, it is. To give you an idea of the book we will give you two or three selections:

On page 8, in speaking of yards or runs, he says: "To be a successful poultry-keeper it is very necessary to keep the fowls on the premises divided into small flocks of fifteen or twenty to the flock." In another place he says that fifteen or twenty fowls will usually pay better than fifty or more together. The reason of this, we presume, is on account of disease and many other ills to which poultry are subject when in larger flocks. Again, he says, in speaking of artificial hatchers or brooders, "We would not advise persons of inexperience in poultry culture to invest at the outset in an expensive incubator with the expectation of making a success of it. It is a great deal better and a great deal cheaper to experiment with a 25-cent hen as an incubator at first." The author does not discourage the use of brooders and incubators; but he advises every one to be a little careful how he invests his money in expensive apparatus at the outset. The book is divided into chapters, and every thing is made so plain that any bright boy or girl could, upon reading the instructions, successfully manage poultry, we think. The price is 50 cents. It can be had of the author, or of the publishers, Foster & Webb, Nashville.

THAT CANADIAN IMBROGLIO.

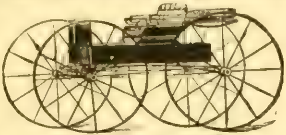
THE unwisdom of incorporating the North American, and the subsequent non-affiliation of the Ontario Society, is still harped on at length in the *Canadian Bee Journal* by two of its correspondents. If the latter had left out, or could leave out, their unchristian and unkind thrusts toward ourselves and two or three others on this side of the line, we might feel disposed to reply in detail. When controversy arrives at this stage we would rather drop out altogether, even if we are placed in an unpleasant light by the other side, although we could answer every one of the allegations. As we said at first, we still insist that "further discussion is ill advised and unwise," especially if it must degenerate into a clannish and partisan spirit. R. McKnight's reply we considered fair and courteous, and so, also, do we consider the criticisms of S. Corneil with reference to our position regarding the best treatment for foul brood.

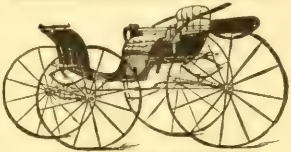
With regard to incorporation of the North American, if, in view of its unpleasant reception on the Canadian side, our American bee-keepers would feel disposed to "throw up the sponge" we would be in favor of doing so, solely on the ground of peace. Perhaps on this point we may differ with Mr. Clarke. Our relations with Canadians in general, up till now, have been of the pleasantest, and we would rather yield a point, or, if you please, "back down"—yes, lose all the advantages of incorporation, rather than not enjoy cordial relations.

THE INTERNAL WATER CURE.

As nothing has been said in regard to this of late, perhaps some of the friends would like to know how it has turned out after longer experience. Well, so far as a forward movement in the line of cleanliness that has heretofore been neglected is concerned I think it has accomplished a great deal of good; but as to curing the great list of diseases that it was claimed to cure by those who sold the secret for several dollars, it is simply a disgrace to those who have peddled it and received money for the information. Some of you will bristle up again, I think quite likely; but, my dear friends, during my travels I made it a point to get the opinions of some of our best physicians. Not only that, I met and talked with many people who used it, and a great many who paid money for the secret. Like almost every other remedy, it is useful in certain cases; but so far as being a benefit when used indiscriminately, it is a mistake. Your family physician can, as a rule, guide you safely in this matter. Several instances came to my notice where its use did harm, without question; and I presume that the *greater part* of those who were so enthusiastic about it a year ago have mostly abandoned it—that is, for constant use year in and year out, as recommended by Wilford Hall and his agents. The idea that our family physicians are hostile toward it because it cuts off their practice is ridiculous; and any well-informed man or woman of the present day should be ashamed of such talk. It is a disgrace to the present state of civilization. Of course, there *are*, here and there, unprincipled physicians; but as a class, the medical men of our age are among the best informed, and, as a rule, they are working hard on this problem that lies before us all—what is the cause of so much human suffering, and how shall we lessen it? Now, when you are tempted again to say that all doctors are rascals, remember it comes next door to saying that "all men are liars."

Now abideth faith, hope, charity, these three; but the greatest of these is charity. A. I. R.





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F.M.B.A. Members and thousands of other good men and true, patronized us so liberally last year that we were compelled to buy, build and increase our facilities until now we now have one of the LARGEST CARRIAGE and HARNESS FACTORIES IN THE WORLD. The Alliance Factory runs when others shut down or break up.

"A" Grade $40.

"A" Grade $46.

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Send for our handsome, illustrated Catalogue, showing over 100 different styles of Vehicles and Harness, and you will understand why all this phenomenal success and immense business. We actually give more for less money than any Buggy or Harness factory in the world. All goods hand made and warranted for years. Get our prices and compare them with your dealers.

ALLIANCE CARRIAGE CO. CINCINNATI, O.

North Court St., opp. the Court House.

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AND DON'T YOU FORGET IT

I TELL you what, Jones, **Levering Bros.** sell the best goods and at the lowest price of any one I've struck yet. The largest and best equipped

Bee - Hive Factory

in the West. The Dovetailed Hive and New Hoffman self - spacing Frame a specialty. Every thing used by practical bee-keepers at wholesale and retail. Send for their free Illustrated Price List, and save money. Supply Dealers, send for their Wholesale List. Address

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Wiota, Cass Co., Iowa.
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Write for prices on large quantities.

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Write for prices on large quantities.

Send for our 24-Page Catalogue of Dovetailed Hives, Smokers, Extractors, Etc.

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I am Pushing Ahead!

And am so far in the lead that I challenge any one to show up superior bees to my best

Five-Banded Golden Italians.

Large, beautiful, gentle, and good honey-gatherers; the results of 10 years' careful breeding. Try them. Satisfaction guaranteed. Queens in May, $1.25 each; 6 for $6. After June 1, $1 each; 6 for $5. For full particulars, send for descriptive circular.

CHAS. D. DUVALL, Spencerville, Md. 7tfdb

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STRAWBERRY WONDERS!

BOYNTON 700 bushels of berries to the acre.
BERT SEEDLING -11360 quarts to the acre

At the Geneva Experimental Station, in matted rows. The best Shipping and Selling Berries ever produced.

BOYNTON —50c per dozen. $2 00 per 100.
BERT SEEDLING 25c per dozen; $1.25 per 100, post-paid by mail. Also Jessie, Kentucky, and 25 other varieties. Two first are the best. Also

TRUE BELGIAN HARES CHEAP.

Address F. BOOMHOWER, Gallupville, N. Y.

BEESWAX!

Foreign and domestic. Crude and refined.
A stock constantly on hand.
Write for prices, stating quantity wanted.

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A HONEY-EXTRACTOR FREE.

Send me your name on a postal card for my new catalogue of Italian queens and all kinds of BEE KEEPERS' supplies, and I will tell you how to get a NOVICE EXTRACTOR free. Address WEAVER,

7-8 THE BEE MAN, Warrensbug, Mo.

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THE DEAD LINE

IN **BEE-KEEPING**—March and April—is at hand. Read

"THE WINTER PROBLEM,"

and keep up with the times. **Price 50 cts.**

G. R. PIERCE, Blairstown, Benton Co., Iowa.

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Bee-Keeper's Supplies.

Hives, Honey-Cases, Sections, and Frames. We are the only concern in Southern California who make a

SPECIALTY OF BEE-KEEPERS' MATERIAL.

Agents for the white basswood 1-lb. sections. Send for catalogue and price list.

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SECTIONS.

$2.50 to $3.50 per M. Bee-Hives and Fixtures cheap. **NOVELTY CO.,**
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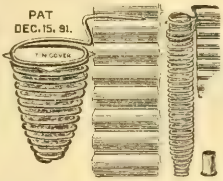
CONTROL YOUR SWARMS!

N. D. WEST'S SPIRAL WIRE QUEEN CELL PROTECTORS AND CAGES.



N. D. West's Spiral Wire Queen-Cell Protectors will do it, and you can RE-QUEEN your apiary during the swarming season. Pronounced the Best by such men as CAPT. J. E. HETHERINGTON, Cherry Valley, N.Y.; P. H. ELWOOD, Starkville, N. Y., and others. Cell-Protectors, $3.00 per 100, or 12 for 60c, by mail. Cages, $5.00 per 100, or 12 for $1.00, by mail. Samples of both, with circular explaining, 25 cts. The cages are used for hatching queens in any hive, and are the Best Bee Escape in use. Address 8-9 10d

N. D. WEST, Middleburgh, Schoharie Co., N. Y.

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TAKE NOTICE!

BEFORE placing your orders for SUPPLIES, write for prices on One-Piece Basswood Sections, Bee-Hives, Shipping-Crates, Frames, Foundation, Smokers, etc. PAGE & KEITH,
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MANUFACTURES APIARIAN SUPPLIES OF EVERY DESCRIPTION. CATALOGUE FREE TO ALL. SEND YOUR ADDRESS.

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Honey-Sections, &c., &c.
Perfection Cold-Blast Smokers.

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Send 10-ct. stamp for "Practical Hints to Bee-keepers."
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Bees For Sale.

COLONIES, NUCLEI, AND QUEENS,

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Bee-Keepers' ✻ Supplies.

We are prepared to furnish bee-keepers with supplies promptly and at lowest rates. Estimates gladly furnished, and correspondence solicited. Our goods are all first-class in quality and workmanship. *Catalogue sent free.* Reference, First National Bank, Sterling, Ill. Address 1-24db

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POULTRY. Choice Fowls and Eggs for sale at all times. Finely illustrated circular free. GEER BROS St. Marys, Mo. 21tfdb

SAVE MONEY.—Send to J. P. H. Brown, Augusta, Georgia, for his price list of supplies. Hives and foundation at wholesale rates. 4tfdb

ITALIAN QUEENS FOR SALE.

The finest honey-gatherers in the land. Tested, $1.50 each. Select tested, $2.00 each. Untested, $1.00 each, or $9.00 per doz. Queens ready to ship by April first. I guarantee safe arrival and satisfaction, by mail. Orders booked now and pay when you want queens.. J. W. TAYLOR,
4tfdb Ozan, Ark.

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Hatch Chickens by Steam.

IMPROVED EXCELSIOR INCUBATOR

Circulars free.

Will do it. Thousands in successful operation. *Simple, Perfect and Self-Regulating.* Lowest-priced first-class Hatcher made. Guaranteed to hatch a larger percentage of fertile eggs at less cost than any other. Send 6c. for Illus. Catalog. GEO. H. STAHL, Quincy, Ill.

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Bee-Hives and Sections

A specialty. Foundation, Smokers, etc., in stock. Send for new list, free.
4tfdb **W. D. SOPER. Jackson, Mich.**

Please mention this paper.

EARLY GOLDEN, UNTESTED QUEENS, $1.00. LARGE, FINE, GENTLE, AND BRED for business. Ready about March 20. Dealers send for prices. Fine tested, raised last year, $1.50 to $2.00. A few breeders, Italian or Golden, $3 to $5.

J. B. CASE, Port Orange, Vol. Co., Fla.

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DR. J. W. CRENSHAW, Versailles, - Kentucky,

Offers for Sale

Untested Italian Queens at $1.00 each through May and June; after, 75c each. Safe arrival guaranteed. Queens raised only from Imported mother. Drones only from selected and tested mothers.
Also CELERY PLANTS from July to September, at $2.00 per M. 7-18db

Western Bee-Keepers' Supply House

Root's Goods can be had at Des Moines Iowa, at **Root's Prices.** The largest supply business in the West. Established 1885 Dovetailed Hives, Sections, Foundation, Extractors, Smokers, Veils, Crates, Feeders, Clover Seeds, etc. Imported Italian Queens. Queens and Bees. Sample copy of our Bee Journal, **"The Western Bee-Keeper,"** and **Latest Catalogue** mailed **Free** to Bee-keepers.

JOSEPH NYSEWANDER, DES MOINES, IOWA.

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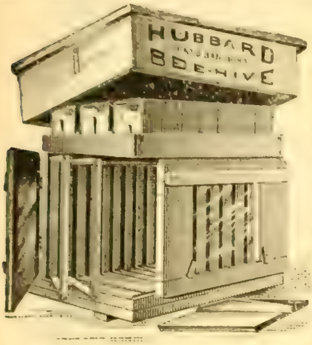
HUBBARD BEE HIVE AND SECTION PRESS.

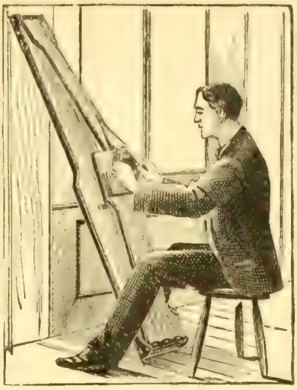


If you want to handle bees **easy** by sitting down to it here is the hive. Frames fixed and variable distance combined No wrenching or prying or scraping of combs together. Many thousands in use giving excellent satisfaction

Live Agents make Splendid Profits.

Large Circular of 20 pages free

This **SECTION PRESS** (Pat'd is sold at **$2.50** by the leading supply dealers Ask them for it or send to me. A boy can put together 800 to 1000 sections an hour and have them **true.** Bend section around put in press give a little push —'tis done Will last a life-time and is bound to please you



Send for my Circular about Hive. Press Foundation Fastener. Sections, Foundation Italian Queens. Extractors, Veils. Honey Crates and Cases, &c &c It will interest you Or send **15 cents** for Practical Book for Beginners—**"First Principles in Bee Culture."** 11th thousand just issued.

G. K. HUBBARD, 277 Harrison St., Fort Wayne, Ind.

3-10db ☞In responding to this advertisement mention GLEANINGS.

Sections! Yes! Sections!

800,000 all ready for shipment in standard sizes, planed on both sides.

Our customers say we manufacture the finest sections made in Canada.

We are the only manufacturers in Canada of the celebrated A. I. Root Dovetailed hive.

Our one-dollar dovetailed hive includes Leach's improved comb-honey crate complete. By using the above crate the sections are taken off perfectly clean, need no scraping, and are all ready for market. All our hives are furnished with the improved Hoffman frames.

We make a specialty of manufacturing all kinds of bee-keepers' supplies.

Our new catalogue for 1892 mailed free on application. Address

BEE-HIVE SUPPLY & M'F'G CO.,
Lock Box 114. Tilbury Center, Ont., Can.

Reference Merchants' Bank, Tilbury Center, Ont. Robt. Ed. Smith, S. A. Leach.

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A POULTRY BOOK

Called "The Chicken Business, and How to Make it Pay." Tells all about it. Finely illustrated, practical, and original. Price 50 cents, postpaid. An illustrated circular free, giving particulars about the book, and prices of pure-bred fowls and eggs for sale by the author. 4tfdb

H. B. GEER. Nashville. Tenn.

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BEES

350 COLONIES OF BEES. 1,000,000 Sections HIVES, Smoker QUEENS, etc Send for price list to E. T. FLANAGAN Box 783, Belleville, Illinois.

FOR SALE.—The apiary of Solomon Vrooman, deceased, consisting of 107 colonies, and all necessary appliances. For many years the apiary of John H. Martin, Hartford, Washington Co., N. Y.

Address F. S. ELDREDGE, No. Adams,
No. 11 No. Church St. Berkshire Co., Mass.

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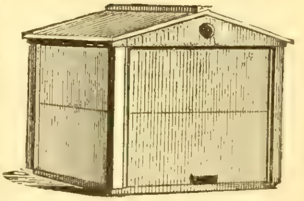
32 pages—**$1.00** a year—Sample Free.

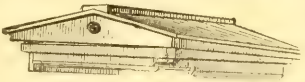
The oldest, largest and cheapest Weekly bee-paper

THOMAS G. NEWMAN & SON,
CHICAGO, ILL.

Great Crash in Prices!



From 10 to 25 % discount from former prices. My 40-page catalogue for 1892 gives reasons. I offer a new-style chaff hive at one-half the cost of other styles, and just as good. This hive can be taken apart almost instantly, and packed up in small space. It can be used on any hive (see cut). Don't fail to get my 32d annual price list. I mean business, and am bound to sell as good as the best, and at equally low prices.



Address **WM. W. CARY,**
6tfdb **COLERAINE, MASS.**

Please mention this paper.

VIOLINS GUITARS MANDOLINS MUSICAL GOODS OF ALL KINDS. MURRAY & HEISS. CLEVELAND OHIO. CATALOGUE FREE

☞In responding to this advertisement mention GLEANINGS.

PERSONS WANTING APIARIAN SUPPLIES

Would do well to send to W. E. CLARK, Oriskany Oneida Co., N. Y. Send for illustrated price list. Dealers should send for Dealers' list for Smokers. 6-12db

☞In responding to this advertisement mention GLEANINGS.

FOR SALE.

For May delivery, Italian and Hybrid Bees in light shipping-cases, 8 L. frames. Price, for Italians, $4.00; hybrids, $3.00 each, free on board cars here. I guarantee safe delivery.

A. W. GARDNER,
5-8db **Centerville, Mich.**

☞In responding to this advertisement mention GLEANINGS.

SUPPLIES.

Langstroth Bee-hives, and every thing needed in the bee yard; 30-page catalogue free. **"BUSY BEES,"** a book telling how to manage them, 10 cents in stamps.

WALTER S. POUDER, 5-12db
175 E. WALNUT ST., INDIANAPOLIS, IND.

☞In responding to this advertisement mention GLEANINGS.

For Sale. CALIFORNIA! For Sale.

A ranch of 280 acres. Government land adjacent. Dwelling, bee-house, honey-house, barn, and all needed out-houses. Cattle and horses, with wagons and farming implements if desired. A bargain for a bee-man who has not used his homestead and preemption rights. Address **C. B. A.,**
8-9d **Lonoak, Monterey Co., Cal.**

Wholesale and Retail Manufacturer
and Dealer in **BEE-KEEPERS' SUPPLIES.**
ONE-PIECE SECTIONS A SPECIALTY,
AS GOOD AS THE BEST.

Send for catalogue. **W. E. SMITH,**
5tfdb *Successor to Smith & Smith,*
KENTON, HARDIN CO., OHIO.

In writing advertisers please mention this paper

My Catalogue of **APIARIAN SUPPLIES** for 1892 is free; My Pamphlet, "**HOW I PRODUCE COMB HONEY,**" by Mail, 5 cts.
GEO. E. HILTON, Fremont, Mich.
Please mention GLEANINGS. 2-13db

ITALIAN QUEENS.

Untested, $1; 6 for $5. Tested, $1.50; 6 for $7. Special terms for large orders.
H. FITZ HART,
6tfdb **Avery, Iberia Parish, La.**
☞Please mention GLEANINGS.

BEES BY THE POUND,
ITALIAN QUEENS. ALSO A SELECT LINE OF
BEE-KEEPERS' SUPPLIES
Send for price List to
OLIVER FOSTER, Mt. Vernon, Linn Co., Iowa.
6tfdb Please mention this paper

BEST ON EARTH

ELEVEN YEARS WITHOUT A PARALLEL, AND THE STANDARD IN EVERY CIVILIZED COUNTRY.

Bingham & Hetherington
Patent Uncapping-Knife,
Standard Size.
Bingham's Patent Smokers,
Six Sizes and Prices.

Doctor Smoker,	3½ in.,	postpaid	$2.00
Conqueror "	3 "	"	1.75
Large "	2½ "	"	1.50
Extra (wide shield)	2 "	"	1.25
Plain (narrow ")	2 "	"	1.00
Little Wonder,	1¾ "	"	65
Uncapping Knife			1.15

Sent promptly on receipt of price. To sell again, send for dozen and half-dozen rates.

Milledgeville, Ill., March 8, 1890.
SIRS:—Smokers received to-day, and count correctly. Am ready for orders. If others feel as I do your trade will boom. Truly, F. A. SNELL.

Vermillion, S. Dak., Feb. 17, 1890.
SIRS:—I consider your smokers the best made for any purpose. I have had 15 years' experience with 300 or 400 swarms of bees, and know whereof I speak. Very truly, R. A. MORGAN.

Sarahsville, Ohio, March 12, 1890.
SIRS:—The smoker I have has done good service since 1883. Yours truly, DANIEL BROTHERS.

Send for descriptive circular and testimonials to
7tfdb **BINGHAM & HETHERINGTON, Abronia, Mich.**
☞In responding to this advertisement mention GLEANINGS.

DOVETAILED HIVES, SIMPLICITY HIVES,
SECTIONS, EXTRACTORS, ETC.
A FULL LINE OF
BEE-KEEPERS' SUPPLIES.
60-PAGE CATALOGUE. 1tfdb
J. M. JENKINS, WETUMPKA, ALABAMA.
☞In responding to this advertisement mention GLEANINGS.

SPRAY YOUR FRUIT TREES AND VINES

Wormy Fruit and Leaf Blight of Apples, Pears, Cherries, Grape and Potato Rot, Plum Curculia prevented by using **EXCELSIOR SPRAYING OUTFITS.** **PERFECT FRUIT ALWAYS SELLS AT GOOD PRICES.** Catalogue showing all injurious insects to Fruits mailed free. Large stock of Fruit Trees, Vines, and Berry Plants at Bottom Prices. Address **WM. STAHL, Quincy, Ills.**
24-10db ☞In responding to this advertisement mention GLEANINGS.

ROOT'S GOODS FOR THE EAST.

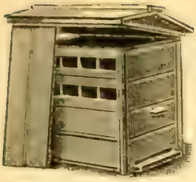
Bee-Keepers of the East should

Bear In Mind that we have established at Syracuse an **Eastern Branch**

where our Bee-keepers' Supplies are kept for sale, and prompt shipment. You can save time and freight by ordering from our Eastern Branch. We have engaged Mr. F. A. Salisbury to take charge of this business, and he will treat you well. He will be pleased to send you a list of goods kept in stock.

Address all orders,

EASTERN BRANCH, F. A. SALISBURY, Agent, Syracuse, N. Y.



WITH the help of my bee-keeping friends I am coming to the front with my

CHAFF HIVE,
Single-Walled Hive,
and Hive-Protector.

Write for price list.

GEO. H. KIRKPATRICK,
Union City, Ind.

☞In responding to this advertisement mention GLEANINGS.

ONE

PUNIC QUEEN and AM. APICULTURIST One Year,	$2.50
Golden Carniolan and Am Apiculturist One Year,	2.00
Beautiful Italian and Am. Apiculturist One Year,	1.50

Eight-page catalogue free.
8tfdb **H. ALLEY, Wenham, Mass.**

☞In responding to this advertisement mention GLEANINGS.

ALWAYS ON TOP

Our strain of **Italians** have reached the **top**. Golden-colored queens bred for business. **Tested** queens in May, $1.50; 3 for $4.00. Untested, $1.00; 3 for $2.50. **Nuclei** and full colonies at special prices. **Bee Supplies** of all kinds. Send for circular giving full particulars. **JNO. NEBEL & SON,**
High Hill, Mo.

☞In responding to this advertisement mention GLEANINGS.

JENNIE ATCHLEY

Will send you queens by return mail. Safe arrival and satisfaction guaranteed; either three or five banded strains. Untested, April and May, $1.00 each; six, $5.00; after, 75c each; six, $4.20; or $8.00 per dozen. Tested and breeding queens on application; try my queens. Money-order office, Greenville.

JENNIE ATCHLEY,
1tfdb **Floyd, Hunt Co., Texas.**

Please mention this paper.

DON'T pay two prices for Bees, Queens, and Supplies, but send for my **Catalogue** with **Discount** sheet, on **5-Banded Queens**, and get the best at ½ price. CHAS. H. THIES, Steeleville, Ill.

GOOD QUEENS! CHEAP!

30 tested Italian queens, raised last season. I will sell after Apr. 20; $1.25 each; per doz., $12.00. I will have untested queens about May 9, at $1.00 each; $10.00 per doz., ready to mail; reared from one of A. I. Root's best imported queens, or from select home-bred stock. **W. A. COMPTON,**
8d **Lynnville, Tenn.**

Please mention this paper.

IMPORTED ITALIAN QUEENS, $3.50 on arrival, June 1st. Untested queen, $1.00. Order now. W. C. FRAZIER, Atlantic, Iowa.

For Sale, 15 Hives of Bees,

In double-walled hives on the L. frame.
7tfdb A. POWERS, Brittain, Summit Co., Ohio.

FOR SALE. Two hundred five-gall. screw-top square honey-cans; been used once, the most of them as good as new, at 20c each, f. o. b. Address **C. A. STANTON,**
8d **Newington, Hartford Co., Conn.**

EARLY QUEENS FROM TEXAS.

From my choice 3 or 5 banded stock. My bees are very gentle, good workers, and beautiful. Safe arrival and satisfaction guaranteed. One untested queen, April and May, $1.00; six for $5.00; later, 75c. Orders booked now; money sent when queens are wanted. Send for price list.

J. D. Givens, Lisbon, Tex.

Please mention this paper.

POLISHED

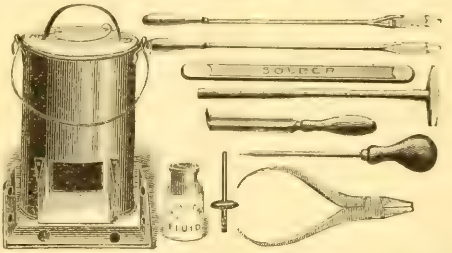
One-Piece Sections Our Specialty.

I challenge comparison of my goods with those of any other make on the market. If, upon fair trial, they are not found superior to, and cheaper than, any makes of so-called snow-white, premium, sandpapered, etc., sections, the goods will cost you nothing, and you are invited to publish me as a fraud.

I can fill orders promptly for any width at $2.75 per M.; or $2.50 per M. in 5000 lots at factory at Wauzeka, Wis. Other supplies shipped from Capac.
8tfdb Address **B. WALKER, Capac, Mich.**

8-11db Please mention this paper.

Oatman's Soldering and Repair Kit



Consists of fire-pot, two copper soldering-irons, bar solder, soldering fluid and brush, all-steel scraper, hammer, scratch-awl, and plyers, as shown in cut. Any one purchasing this outfit will get full directions, which will enable them to repair tin, copper, brass, metals, and iron; also how to keep their soldering-irons in order. Whole kit, boxed, 12 lbs. Shipped on receipt of **$2.** *Agents wanted.*

O. & L. OATMAN, Medina, Ohio.

☞In responding to this advertisement mention GLEANINGS.

IF YOU WANT BEES

That will just "roll" in the honey, try Moore's strain of Italians, the result of 13 years' careful breeding. T. J. Moffitt, Kemps Mills, N. C., says: "They beat any thing I ever saw in the bee line. They are certainly 'rolling' in the honey now; one of them beats three of my others at work. I would not take $5.00 apiece for the queens. They seem very gentle." Prices: Warranted queens, in June, $1.00 each; 3 for $2.50. Tested queens in May, $2.00 each; select tested, $2.50. Circulars free. 8d

J. P. MOORE, Morgan, Pendleton Co., Ky.

Mention this paper.

FOR SALE.

50 colonies of Italian bees in A. I. Root's 8-frame Dovetailed and Langstroth's 10-frame hives, at five dollars per colony. A liberal discount for more than one colony. Safe delivery guaranteed. 8-11db

JOHN GRANT, Batavia, Ohio.

MARTIN'S PROLIFIC BUCKWHEAT.

Same kind as advertised last year in GLEANINGS. On my sandy soil it yields double the quantity per acre as Japanese. Gives excellent satisfaction. $1.00 per bu., cash, on board cars here, sacks included. **WM. MARTIN,**
8-11db **Highland, Oakland Co., Mich.**

Please mention GLEANINGS.

FREE! My new price list of **Pure Italian Bees, White and Brown Leghorn Chickens, White and Brown Ferrets, and Scotch Collie Pups.** Address
N. A. KNAPP, Rochester, Lorain Co., O.
8tfdb

Foundation, Wholesale and Retail.

If you would like to see how nice foundation can be made, send for free samples. Special prices to dealers on Foundation and Sections, etc. Free price list of everything needed in the apiary. 6tfdb (Near Detroit.)

M. H. HUNT, Bell Branch, Mich.

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All advertisements intended for this department must not exceed five lines, and you must SAY you want your adv't in this department, or we will not be responsible for errors. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To trade a large lot of Heddon hives, nicely made and good as new; some with combs complete for honey, now or after crop of '92. Write for particulars. Address D. S. Hall,
2tfdb South Cabot, Vt.

WANTED.—To exchange job printing of any kind for black or Italian bees. A. D. Ellingwood,
6-9db White Mountain Apiarist, Groveton, N. H.

WANTED.—To exchange 1 high-arm Singer sewing-machine, good as new, 3 White Plymouth Rock cockerels, Trio White Minorcas, and eggs from White Minorcas, White P. Rocks, Golden Wyandottes, S. C. Brown Leghorns, R. C. Brown Leghorns, and Pekin ducks, for comb foundation, or offers. J. C. Provins, Masontown, Fayette Co., Pa.
7-8d

WANTED.—To exchange brood-foundation, at 40c per lb., or light for the boxes at 50c per lb., for wax at 30c per lb. B. Chase,
7tfdb Earlville, Madison Co., N. Y.

WANTED.—To exchange pure Italian queens, three or five banded, or from imported queens, for 1-lb. sections and comb foundation. 7tfdb
Mrs. Oliver Cole, Sherburne, Chenango Co., N. Y.

FOR sale or exchange.—1 Barnes foot-power saw, 3 swarms of bees. L. L. Esenhower,
Reading, Berks Co., Pa.

WANTED.—To trade a lot of American hives and combs, or combs without hives, for something useful in apiary; also some Langstroth combs.
Robt. Quinn, Shellsburg, Iowa.

FOUNDATION exchanged for wax or a few bees by the pound in May. W. H. Upton,
Morning Sun, Iowa.

WANTED.—A middle-aged woman, to live as one of the family; only three in family. Address
8d Adell Wood, Monahans, Texas.

WANTED.—To exchange double-action S. and W. model revolver and Italian queens for P. China, Berkshire, or Essex pigs. W. C. Gathright,
Toccopola, Miss.

WANTED.—An experienced bee-keeper to work in apiary. J. A. Arbuckle, Greeley, Col.

WANTED.—To exchange choice Carniolan and Italian queens for supplies. 8-9d
F. A. Lockhart & Co., Lake George, N. Y.

WANTED.—To exchange new D. hives for tested Italian queens. J. G. Rislow, Lake Mills, Ia.

WANTED.—To exchange for bees or offers, the following books: Clarke's Commentary, Vols. 5 and 6, N. Testament; History of Methodism, Stevens, 2 vols.; Heroes of Methodism; Life of Swedenborg; Mary, Queen of the House of David; Greek Testament; Bible Dictionary (Union); Jacobus on the Acts; Presbyterian Reunion Memorial Volume.
Address J. Ferris Patton,
693 Freeman Ave., Cincinnati.

WANTED—LADY OR GENT IN EACH county to distribute and collect for Brabant's ladies' toilet cases; 238 articles, worth $1; will send sample and full particulars by mail for 35c in stamps; returnable if not satisfactory; territory free; $3 to $5 per day easily made. Address J. C. Frisbee, general agent, 172 Maple St., Denver, Col.

JUST OUT!

TILE ✠ DRAINAGE.

BY W. I. CHAMBERLAIN, A. M., LL. D.,

Formerly Secretary of the Ohio State Board of Agriculture, and late President of the Iowa State Agricultural College. At present Associate Editor of the Ohio Farmer.

This is a valuable companion to our other rural books. It embraces the experience of forty years of one of our foremost practical agriculturists, who has laid with his own hands over 15 miles of tile. Price 35c; by mail, 40c.

A. I. ROOT, MEDINA, OHIO.

TESTED ITALIAN QUEENS.

Bred for business and general good qualities, of last year's raising, $1.00 each; $10.00 per doz. Hybrids, 25 cts. each. 7-8d
T. W. LIVINGSTON, Dalton, Whitfield Co., Ga.

☞ **In responding to this advertisement mention Gleanings**

WANTED.—To exchange my 10th annual price list of apiarian supplies, also pure gold strain of Jersey sweet-potato seed, for your name and address plainly written on a postal card. 7-8
C. M. DIXON, Parrish, Ill.

A B C OF

STRAWBERRY ✣ CULTURE.

A ⁑ BOOK ⁑ FOR ⁑ BEGINNERS.

BY T. B. TERRY.

This is Terry's latest and best work, and has received some very high words of praise. Who that keeps bees does not also have a little garden-patch? If you would learn to raise in it that most luscious of all fruit, the strawberry, with the best results, you can not be without this little book. Even if you don't grow strawberries you will be the better for reading it. Pages one-half size of this. Fully illustrated; 144 pages. Price 35c; by mail, 40c.

A. I. ROOT, MEDINA, O.

Cash for Beeswax!

Will pay 27c per lb. cash, or 30c in trade for any quantity of good, fair, average beeswax, delivered at our R. R. station. The same will be sold to those who wish to purchase, at 32c per lb., or 35c for *best selected wax.*

Unless you put your name *on the box*, and notify us by mail of amount sent, I can not hold myself responsible for mistakes. It will not pay as a general thing to send wax by *express.*

A. I. ROOT, Medina, Ohio

Black and Hybrid Queens For Sale.

For the benefit of friends who have black or hybrid queens which they wish to dispose of, we will insert notices free of charge, as below. We do this because there is hardly value enough in these queens to pay for buying them up and keeping them in stock; and yet it is oftentimes quite an accommodation to those who can not afford higher-priced ones.

I have 50 good hybrids and black queens for sale at 25c each, ready for immediate delivery.
6-7d W. H. Heastman, Citra, Marion Co., Florida.

Black queens, 15c; hybrids, 20c; mismated, 25c.
Geo. E. Dawson, Carlisle, Ark.

I have a few hybrid queens, young and very prolific, 35c each; 3 for $1.00. W. C. Gathright,
Toccopola, Miss.

25 mismated and hybrid queens at 40c each. They are large and sprightly, and prolific layers. Stamps taken. J. J. Hardy, Lavonia, Franklin Co., Ga.

KIND WORDS FROM OUR CUSTOMERS.

My goods arrived all right, and I am well pleased. The sections are very nice. SOLOMON LEWIS.
Bellevue, O.

I received the goods in good order nothing lost. I was well pleased with every thing.
Mauston, Wis. C. E. HASKINS.

As to the A B C book, I don't think I ever read a novel that interested me any more than that does.
Diamond, Pa. F. B. ROSS.

I am very much pleased with the goods I received from you. I like the thick slats of the section-holders, and the foundation is the finest I ever had.
Carpenter, Ill. E. SMITH.

I have received your book, the A B C of Bee Culture, and one copy of GLEANINGS, and am very well pleased with them. FRANK ARNOLD.
Deer Plain, Ill.

Goods received Jan. 1, 1892, that I ordered of you Dec. 12, 1891. They came through in good condition, and I am well pleased with them. JAS. A. ADAMS.
Gunn City, Mo.

My order, which is No. 8918, came to hand all right. The extractor is a daisy. The hives are the very thing that I wanted. Your A B C book is very practical. A. J. BLANKENBECKLER.
Greenback, Tenn.

If you make your GLEANINGS as interesting in the future as in the past, please consider me a "sticker." L. G. ENGLISH.
Marysville, O.

[That's plain English.]

Friend Root, you may continue GLEANINGS. I inclose $1.00. I am very much pleased with my sewing-machine. I think it is on the true principle.
Mohawk, N. Y. CHAS. P. BROWN.

How GLEANINGS has improved! If it would only come every week, and as "chuck full" of good sound reading as it now is, it would have no rival. Allow me, Ernest, to congratulate you on your part toward making us a good periodical.
Welton, Iowa. FRANK COVERDALE.

GLEANINGS AS AN ADVERTISING MEDIUM.

I found your journal the best advertising medium last season. I had more orders from the two insertions than I had from other journals in which I advertised 6 months. O. J. E. URBAN.
Thorndale, Texas.

There are other sweets that we get out of the columns of GLEANINGS besides bees and honey—the crumbs that fall from the master's table—those good things our children like to read, and profit by the same. S. F. MILLER.
North Manchester, Ind.

GLEANINGS is always a welcome visitor, or, rather, a welcome member of the family. Your father's notes of travel are worth many times the price of GLEANINGS. M. L. BREWER.
Philo, Ill.

Wife can't give up the "good talks," and I won't give up any part of your journal, although my apiary does not furnish much honey except about one year in five. N. W. FALES.
Innsdale, Cal.

GLEANINGS improves with every issue, but it ought to have more items from Southern bee-keepers to make it of as much use to us as it is to those further north. H. FITZ HART.
Avery, La.

[We are glad to get items of interest from practical men from the South. We desire to make GLEANINGS interesting to all classes.]

Goods ordered of you were received all right. It is almost surprising with what promptness you folks do business. When we order goods from you they are always here before we are looking for them. The sewing-machine gives splendid satisfaction. The lady told me she liked it well, and would just as soon have it as a $40 machine an agent left at her house to try to sell to her before she saw the one I got from you for my daughter. Long life to GLEANINGS and all its helpers. L. DYER.
Morristown, Ind.

I find every thing complete. I am well pleased. The sewing-machine is nicer and better than we expected. I have tried it thoroughly, and find it first-class in every respect. I believe I could secure more sales of machines in this locality by a little work.
Corunna, Ind. SIMPSON FARRINGTON.

We were very glad you were out of the 1890 hives. I like these new Dovetailed hives much the best. Friend Bean says they are the nicest hives he ever saw, and every thing fits so nicely he says he can put these together in one-third less time than the ones he got last year from another firm.
Canaanville, O., Feb. 22. F. J. STIERS.

Job Lot of Wire Netting.

CUT PIECES AT A LOWER PRICE THAN FULL ROLLS.

Having bought from the factory, at our own price, five or six hundred remnants, as listed below, we are able to give you the choice of a great variety of pieces at the price of a full roll or lower. Full rolls of netting are 150 ft. long, and when they are cut we have to charge nearly double the full-roll rate, because it is so much trouble to unroll, measure, and cut, and run the risk of having a lot of remnants on hand. No doubt it is in this way that the following remnants have accumulated. It costs a good deal to get all this in shape so we can easily pick out from the lot the piece you want. But to move it off quickly, we put the price down so you can all have a chance at it. Remember, first come, first served. In ordering, therefore, name a second or third choice, or say that we may send the nearest we can if the piece selected is gone. On 5 pieces deduct 5 per cent, on 10 pieces 10 per cent. These remnants are shipped only from here. If any of you want to secure some, and don't want them shipped till later, when you will order something else, so as to save freight, pick out the pieces you want, send remittance with the order, with request to lay by till called for, and we will mark them as belonging to you. We prefer to ship them right out, however.

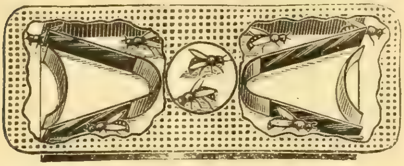
LIST OF POULTRY-NETTING REMNANTS.

Width in in's.	Size of Mesh.	No. of Wire.	Cts. p'r Sq. Ft.	Length of each piece. Multiply by the width in feet to get the number of square feet in each piece. Then multiply by the price per foot for the price per piece.
32	2	20	⅝	27.
2	2	19	¾	103, 100.
72	2	18	1	61, 53, 48, 35, 22, 22.
76	2	17	1¼	23, 15.
36	2	16	1½	23; 18 in. wide, 40; 24 in. wide, 94, 88.
72	2	16	1½	60, 58, 56; 30 in. wide, 46, 24; 48 in. wide, 48.
18	2	15	2	87, 30; 12 in. wide, 100.
24	2	15	2	100, 90, 69, 52, 33, 13, 12, 60 in. wide, 21, 20.
42	2	15	2	121, 23, 8; 72 in. wide, 36, 33, 9.
48	2	15	2	72, 49, 48, 45, 38, 37, 30, 29, 26, 14.
30	1½	19	1	33, 36 in. wide, 47.
42	1½	19	1	85, 59; 60 in., 56; 72 in.
18	1½	18	1⅛	40, 14; 54 in., 12; 60 in., 34.
30	1½	16	2½	79; 36 in., 14; 42 in., 34; 48 in., 92.
36	1¼	20	1½	22.
36	1¼	19	1⅔	48, 12, 24 in., 42; 30 in., 75; 48 in., 78.
36	1¼	18	2	15, 10; 42 in., 80; 48 in., 22; 72 in., 8.
48	1	20	1¾	53; 72 in., 51; 30 in., 96; 9 in., 40.
24	1	19	2	26; 9 in., 24; 42 in., 50, 34; 48 in., 100, 40; 60 in., 26; 18 in., 50.
32	1	18	2½	85; 24 in., 23; 30 in., 69.
36	1	18	2½	48 in., 30; 60 in., 59.
9	¾	20	2¼	7; 36 in., 55.
24	3	16	1	19; 36 in., 86, 42 in., 14.
36	3	15	1⅓	63; 48 in., 60.
48	3	14	1¾	45; 72 in., 100, 70.
14	4	14	3	166, 52, 35, 23
22	4	14	4	107, 68, 35, 17, 15.
30	4	14	4½	52, 47, 36, 33, 30 29 19, 18, 13, 9.
34	4	14	4¾	43, 37, 34, 25, 24, 23, 18.
42	4	14	5	68, 62, 62, 23, 22, 22, 15, 12, 12, 12, 8, 6.
46	4	14	5½	82, 50, 44 11, 5.
18	8	13	2	68 ft.; 36 in., 200 ft. at 4c; 45 in., 247 ft. at 5c.

Four and eight inch fencing. Price in fourth column is the price per foot in length.

A. I. ROOT, Medina, O.

Hastings' Lightning Bee-Escape.



Send for sample of Hastings' "Lightning" Bee Escape, and you will be convinced that it is the best and most practical escape yet produced. It will clear the supers in a short space of time (2 to 4 hours), and it is impossible for the bees to clog the passage, as they can not return. Each escape guaranteed as represented. Price, by mail, each, $0.20; by mail, per doz., $2.25. Full directions with each escape. Electrotypes furnished free for dealers' catalogues. Write for discount. 7-12db

M. E. HASTINGS, New York Mills, Oneida Co., N. Y.

Please mention this paper

PREVENT SWARMING

and increase your honey crop, by replacing OLD worn out queens with YOUNG ones before the harvest opens. I breed the Leather colored strain of Italians. Prices for the next 30 days, $10 per doz.; $1 each. Purity and safe arrival guaranteed.

A. F. BROWN, Huntington, Fla.
Agent Southern Express Co 7-8d

Send for Price List to

R. E. HARBAUGH,

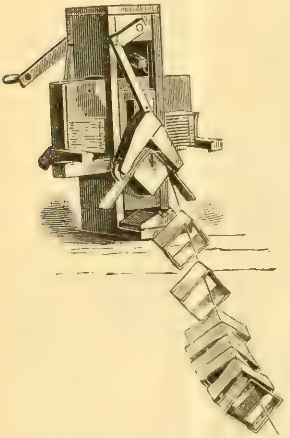
Manuf'r and Dealer in Bee-Keepers' Supplies.

Breeder of Italian and Carniolan Bees and Queens, Light and Dark Colored Ferrets.

25th and Clay Sts., - - - St. Joseph, Mo

PHILO'S AUTOMATIC

SECTION FORMER AND GLUER.



IT DOES BOTH AT THE SAME OPERATION. ALL YOU HAVE TO DO IS TO TURN THE CRANK, AND THE SECTIONS ARE ROLLED OUT BY THE WHOLESALE. ANY CHILD CAN DO IT. PRICE ONLY $3.00.

Address

**E. W. PHILO,
Halfmoon,
N. Y.**

The machine is for any width of the 4¼x4¼ one-piece section.

Italian Bees and Queens For Sale.

Untested queens, $1.00; tested, $1.50. Bees, $1.00 per lb. Colony, $5.00. Also barred Plymouth Rock eggs for sitting, $1.00 per 13.

7-16db MRS. A. A. SIMPSON, Swarts, Pa.

Good Queens Cheap.

300 tested Italian queens, raised last season, for sale at $1; $10 per doz. A few hybrids at 25c each. They will be shipped about June 15th to 25th, or later if desired. Have order booked now and send money when you want them. My bees have been ***BRED FOR BUSINESS,*** and these are bargains. Nuclei and full colonies at very low rates.

J. A. GREEN, Dayton, Ill.

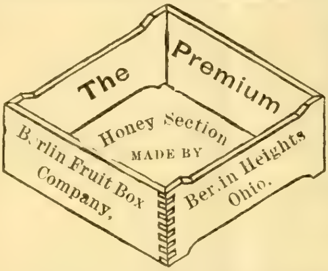
☞In responding to this advertisement mention GLEANINGS.

New Machinery.

We have just put in the latest improved machinery for the manufacturing of bee-keepers' supplies. Dovetailed and cheap L. hives at a bargain. Sections and frames very cheap. A large stock of smokers and foundation. Send for circular.

7-12db **W. H. BRIGHT, Mazeppa, Minn.**

☞In responding to this advertisement mention GLEANINGS.



BEE SUPPLIES and all kinds of Berry-packages, boxes and baskets. We make a specialty of one-piece sections, and wood separators. Address

BERLIN FRUIT BOX CO.,
Berlin Heights
Erie Co.,
Ohio.

Please mention this paper

EARLY QUEENS and BEES
FROM THE SOUTH.

1 untested queen,	April, $1.00;	May, $1.00
3 " "	" 2.75;	" 2.50
1 tested "	" 2.00;	" 1.50
3 " "	" 5.00;	" 4.00

Best Select Tested for breeding, $3.00.

Two-frame nuclei, with any queen, $1.50 each extra. Safe arrival guaranteed. Special rates to dealers.

W. J. ELLISON, 6-7-8d
Catchall, Sumter Co., S. C.

☞In responding to this advertisement mention GLEANINGS.

PAINT FOR
BEE-HIVES.

After much experimentation, and a careful study into the paint question, we offer a mixed

**Paint Prepared Especially for Bee-Hives.
It will not Chalk or Flake off.**

We guarantee it to be free from adulterants, such as whiting, barytes, lime, and other substitutes that do not add to the enduring qualities of the paint. Our paint is made of strictly pure lead, strictly pure zinc, and genuine French ocher of about equal proportions, mixed in pure linseed oil. It is generally recognized that there is no pigment more permanent than French ocher; and this, combined with zinc and lead, makes a most durable combination. The resultant tint is a pale straw color. Price: Pint, 35c; quart, 60c; half-gallon, $1.00; gallon, $1.75. Half a gallon will cover ten No. 1 Dovetailed hives two coats.

A. I. ROOT, Medina, O.

NOTE THESE FACTS,
THAT IN THE
PECOS VALLEY,
THE FRUIT BELT OF NEW MEXICO,

Farmers in this valley raise two or three crops a year of grain and vegetables, and five crops a year of hay:

Stock grazes on green alfalfa all winter;

Every farmer in the Pecos Valley is writing to all his friends to come here;

The Pecos Valley is destined to rival any portion of southern California as a fruit-growing country;

It produces nearly every variety of fruit, vegetable and cereal that can be grown anywhere in the United States;

Nearly every species of forest tree can also be grown here under irrigation;

Vegetables and grain can be grown between fruit-trees while the latter are growing to the bearing stage;

We have a home market for all our products at good prices;

We have the most delightful and healthful climate in the world;

The thickest ice formed here this winter was less than one inch thick;

The total snow-fall was less than two inches;

The sun shone on this valley 352 days in 1891;

This climate is a never-failing cure for consumption, bronchitis, asthma, catarrh, rheumatism, etc.;

All pulmonary troubles are relieved by a permanent residence here;

There is just freezing enough here in winter to kill out any and all possible impurities in air or water;

Men can work outdoors with comfort every day in the year;

Our Pecos River water is pleasant to the taste, and healthful;

It is, moreover, a never-failing cure for dyspepsia and liver troubles, and for all diseases of the bladder and kidneys;

It is also excellent water for stock;

All kinds of stock thrive upon it;

Good, pure, cool well water can be had anywhere in the valley by digging 20 to 40 ft.;

And a great many others equally important which we will point out to you when you come here.

Meanwhile send for handsomely illustrated book, map, etc. Address

PECOS IRRIGATION & IMPROVEMENT CO.,
EDDY, NEW MEXICO.

☞In responding to this advertisement mention GLEANINGS

SPEAK QUICK!

30 Colonies of black bees on Quinby suspended frames, for sale, in light shipping-boxes. These bees have plenty of brood. No foul brood here. Price $3.25 per colony; 10 or more, $3.00.

CHAS. STEWART,
8-9d **Sammonsville, Fulton Co., N. Y.**

☞In responding to this advertisement mention GLEANINGS.

PUNICS.

Headquarters for queens of this race, bred and imported by a "*Hallamshire Bee-keeper*," is below.

Prices each: Virgin, $1.50; fertile, untested, $5.00; ditto pure mated, $10.00; ditto selected, $40.00; ditto imported, $50.00. Sent per mail prepaid and guaranteed against loss in transit or introduction. If not approved of *after trial*, all money returned in *full*. Circular free. Address

JOHN HEWITT & CO., Sheffield, Eng.

☞In responding to this advertisement mention GLEANINGS.

DON'T STOP ME! I am going to send at once to C. W. PHELPS & CO.'S Wholesale and Retail Foundation Factory, Binghamton, N. Y., for a free sample of Honey Comb Foundation, and buy all of my Bee Supplies of them. Its THE place.

Beautiful! Gentle! Prolific!
The Five-Banded Golden Italian Bees.

Send 5c for sample of bees and be convinced. Catalogue free. One queen, June or July, $1.00; six, $5.00.

J. F. MICHAEL,
8-13db **GERMAN, DARKE CO., OHIO.**

Please mention this paper.

BEE-HIVES, Dovetailed or Otherwise.
All Kinds of Bee Supplies.

Write for free catalogue. **W. H. PUTNAM,**
8-13db **River Falls, Pierce Co., Wis.**

☞In responding to this advertisement mention GLEANINGS.

ITALIAN QUEENS. Choice tested, $1.50; untested, 90c. Satisfaction guaranteed.
9-11d S. P. RODDY & BRO., Mt. St. Mary's, Md.

FOR SALE. Seventy-five colonies of bees in Simplicity hives. Price $4 a colony.
Address WM. G. GRIFFITHS,
Chew, opp. Sharpneck St., Germantown, Pa.

TESTED ITALIAN QUEENS, $1.00 EACH. Untested, 60c; select tested, $1.25; one 2-frame nucleus, tested queen, $2.00; one 2-frame nucleus, untested, $1.50. **STEWART BROS.,**
8-12db **Sparta, White Co., Tenn.**

LEATHER-COLORED ITALIAN
QUEENS.

One untested, $1.00; six, $5.50; twelve, $10.00; one tested, $1.50; six, $8.00; twelve, $15.00; selected for breeding *early*, each, $2.50; one year old tested, *in June only*, $1.25; six, $7.00; twelve, $13.00. Two-year-old queens, each, 50c. Descriptive catalogue mailed free on application.

8-13db **A. E. MANUM, Bristol, Vt.**

☞In responding to this advertisement mention GLEANINGS.

LOCATION

Is a big *point*, in supplying goods; ours gives you low freight rates. As we sell low, you should have our circular of supplies. 1-18db

I. J. STRINGHAM, 92 BARCLAY ST., N. Y.

Please mention this paper.

IT PAYS

To order the best made goods. For Fine Sections, Foundation, Perforated Zinc, Queen Excluders, and the best hive for comb honey now before the public, order of Dr. Tinker. PRICES GREATLY REDUCED. Address for catalogue

DR. G. L. TINKER, New Philadelphia, O.

Please mention this paper. 8-11db

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CONVENTION NOTICES.

The first annual meeting of the Connecticut Bee-keepers' Association will be held at Hartford, May 12, commencing at 10:30 A.M. All interested are invited. MRS. W. E. RILEY, Sec.
Waterbury, Ct.

The annual meeting of the Ionia Bee-keepers' Association will be held at the Bailey House parlors, Ionia, Mich., May 11, 1892. John H Larrabee, of the Michigan Agricultural College, will make an address. H. SMITH, Sec., Ionia.

The Southwestern Wisconsin Bee-keepers' Association will hold its next annual meeting in Boscobel, Grant Co., Wis., on the 13th and 14th of January, 1893, commencing at 10 A.M. All members of the association are requested to be present, as the following officers are to be elected: President, vice-president, secretary, assistant secretary, and treasurer. Blank reports will be sent to each member of the association for 1892, with instructions. A cordial invitation is extended to all bee-keepers, and especially to those who would like to join us. Each member will be notified at least one month before said meeting. BENJ. E. RICE, Sec.
Boscobel, Wis.

CIRCULARS RECEIVED.

We have lately received apiarian price lists from the following parties:

F. C. Erkel, Le Sueur, M nn.
Jos. E. Shaver, Friedens, Va.
W. H. Bright, Mazeppa, Minn.
C. D. Duvall, Spencerville, Md.
Otto J. E. Urban, Thorndale, Tex.
J. W. Bittenbender, Knoxville, Iowa.
Leahy Manufacturing Co., Higginsville, Mo.

SPECIAL NOTICES.

CANNED TOMATOES.

We have a large supply of tomatoes of our own canning. They are Ignotums; and as both seeds and juice were separated at the time of canning, the cans contain only the solid Ignotum meat. Price 10 cts. per can, or $9.00 per 100 cans.

SEEDLING TOMATO-PLANTS.

We have quite a surplus in the greenhouse of good strong plants, standing in the seed-bed; but we are having so many frosts that we do not dare risk them outdoors without protection. Under the circumstances we offer them, for immediate orders, for 30 cts. per 100, or $2.00 per 1000. If wanted by mail, add 25 cts. per 100 for postage and packing. We have Livingston's Beauty, Ignotum, and Dwarf Champion at the above prices.

As the trade has hardly yet commenced on cabbage, cauliflower, tomato, and celery plants, we have an unusually good assortment of all of them, including, also, sweet-potato plants. When the frosts let up for good, however, there will probably be a tremendous rush for every thing in this line, and we rather anticipate there will be a scarcity of many kinds of vegetable-plants.

RUBBER STAMPS FOR YOUR NAME AND ADDRESS.

A month ago, in urging you to be sure and sign your name and give your address, we mentioned incidentally that we could furnish you a rubber stamp to print your name and address for 20c, and so we can; but you need with it ink and pads—or, better, a self-inking pad, which costs 25c more. We can, for 25c, furnish you a nickel pen-holder, with sliding pen and pencil in one end, and on the other a rubber stamp, giving your name and address, with pad to ink it, and a tube of ink included, all for 25c. It is usually sold for 50c, and often for 90c or $1.00. If you want this, order our pen and pencil stamp, and be sure to give plainly just what you want it to print. If you don't write very plainly we can not be responsible for errors.

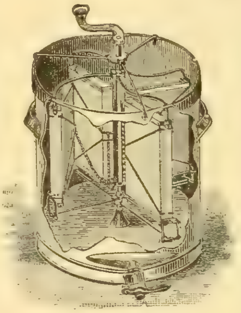
MASON FRUIT-JARS.

Last year, in fruit-canning time there was a scarcity of Mason jars, and the price went up to nearly double what they can be had for now. We advise you to provide yourselves in time before the glass-workers stop for the summer heat. We are prepared to take orders *now* for jars to be shipped direct from Pittsburg, Pa., in original packages, from the first to the fifteenth of June, at the following prices:

Pints (6 doz. in box), $8.00 per gross (12 dozen).
Quarts (8 doz. in box) $8.25 per gross.
2-quart (6 doz. in box) $11.00 per gross.

Remember these prices are good *only for immediate orders*, and to be shipped during the first half of June direct from Pittsburg, Pa. Orders to be sent to us.

STANLEY AUTOMATIC REVERSING HONEY-EXTRACTOR.



As announced in last number of GLEANINGS, we have leased from G. W. Stanley the right to make his automatic extractor, and we bought from E. R. Newcomb his stock of materials and machines unsold. This stock consists of about twenty-five machines, two and four frame. To work it off quick, and give us a chance to put out machines of our own make, we offer these machines as long as they last, at one-fourth off old prices. We will sell the two-frame machines as they are for $9.00; the 4-frame for $15.00. They are crated ready for shipment, with crank direct on the center-shaft. We will attach our new horizontal gear, as shown on page 14 of our catalogue, for $3.00 each extra.

ONE-PIECE SECTIONS.

We are now making one-piece sections at the rate of a million a month. In the five months from Aug. 1st to Jan. 1st we made about one and three-quarter millions; in January and February, one and one-quarter millions; and since the 1st of March we have been turning them out at the rate of a million a month. We have now in stock about one and a half millions of all widths of the 4¼-inch section from 1½ inches up to 2 inches. We have also enough dry lumber in our yard to make about three million more. By the time this is worked up the lumber we have contracted, cut the past winter, will be ready to begin on, and this will make six or eight million more. The quality of the sections is superior to any we ever sent out in former years, and, we believe, equal to any made, and superior to most makes. We contracted to supply one large dealer at a higher price than he was offered other good sections for, because he decided that ours would please his customers enough better to pay the difference in price. We are also making lower prices in large lots to dealers than we have been able to do heretofore. We mention all these things to show you how well prepared we are to serve you. Last year, and the year before, our supply of lumber suitable for sections was insufficient, and, as a consequence, to fill orders at all we were compelled to send out some that were rather inferior for first grade. To many of our friends who received these goods we have allowed a rebate; and to others who mentioned it in their orders we have sent an extra supply of the choice sections we are now turning out. If there are any who have not yet had satisfaction, we want to hear from you so that we may have an opportunity to give you satisfaction, and to give you sections that can not be surpassed by any manufacturer.

HONEY COLUMN.

CITY MARKETS.

NEW YORK. *Honey.* Considerable stock of comb honey on the market, mostly off stock and buckwheat. No demand except for fancy stock. New crop Southern extracted arriving in small quantities, and finds ready sale at from 70@75 a gallon for choice; 65@70 for common. *Beeswax*, quiet, but firm at 27@29, as to quality.

Apr. 23. HILDRETH BROS. & SEGELKEN,
28 & 30 West Broadway, New York.

KANSAS CITY. *Honey.* We report a better demand for comb; but no change in prices. We quote: White comb, No. 1, 13@14; No. 2, 10@12. Amber, No. 1, 10@13; No. 2, 8@10. Extracted, white, 6@7; amber, 5½@6; dark, 5. *Beeswax*, 22@27.

Apr. 20. CLEMONS, MASON & CO.,
Kansas City, Mo.

ST. LOUIS. *Honey.* White-clover honey in comb, 15@16; good white, 13@14. Spanish needle, 12; dark and broken comb, 6@8. Extracted, white-clover, in cans, 7@8, small way; bbls., 5½; Southern strained, in bbls., as to quality, 4½@5¼. *Beeswax*, prime stock, 28½; selected, more.

Apr. 20. W. B. WESTCOTT & CO.,
St. Louis, Mo.

CHICAGO. — *Honey.* — Honey-market unchanged since last reported. The offerings of fine comb are very light, and it brings 15c; dark comb according to present outlook will be about exhausted by May. The price of this is uncertain at 10@13. Extracted sells at 6@7@8. Stock light, and shipments would be sold on arrival. *Beeswax*, 27.

R. A. BURNETT,
Apr. 19. 161 So. Water St., Chicago, Ill.

DETROIT.—*Honey.*—The demand for comb honey is as usual very light at this season of the year. A few fancy lots have sold as high as 14c; but for ordinary lots, 12@13 is what it sells for. Extracted, 7@8. *Beeswax*, in fair demand, 27@28.

Apr. 20. M. H. HUNT,
Bell Branch, Mich.

ALBANY.—*Honey.*—There was quite a brisk demand for comb honey during the week preceding Easter, which enabled us to nearly close out what stock we had on hand. We have much complaint from customers on account of most of the comb honey being candied, which customers object to. Prices range from 6@10. Extracted in moderate demand at 6@8. CHAS. McCULLOCH & CO.,

Apr. 20. Albany, N. Y.

CINCINNATI.—*Honey.*—There is no change in the market. Extracted honey brings 5@8, on arrival. Comb honey is sold at 12@15, for best white, in the jobbing way. *Beeswax.*—Demand is good, at 23@27 for good to choice yellow on arrival.

Apr. 23. CHAS. F. MUTH & SON,
Cincinniti. O.

KANSAS CITY.—*Honey.*—Demand poor, with a large supply of comb. We quote: Comb, 1-lb., fancy, 12@13; dark, 8@9. Extracted, white, 7; dark, 5@6. *Beeswax*, none on the market.

Apr. 20. HAMBLIN & BEARSS,
514 Walnut St., Kansas City, Mo.

NEW YORK. *Honey.* We have no change to make since last quotations, prices hold about the same. Demand is decreasing as the spring advances. Fancy comb honey, 10@12; fair, 8@10; buckwheat, 6@8. Extracted, clover, 6½@7; buckwheat, 5@6; Southern, 65@75 per gallon. *Beeswax*, 27@29.

Apr. 20. CHAS. ISRAEL & BRO.,
110 Hudson St., New York.

SAINT LOUIS.—*Honey.*—Inquiries for strained were frequent, and business more satisfactory. No quotable change in values. *Beeswax*, prime, 28.

Apr. 20. D. G. TUTT GRO. CO.,
St. Louis, Mo.

BOSTON. — *Honey.* — No change in the honey-market. Slow sale and fair stock on hand.

Apr. 21. BLAKE & RIPLEY,
Boston, Mass.

MINNEAPOLIS.—*Honey.*—Fancy white-clover honey in good demand at 16@18. Choice dark selling at 12@14. Strained honey, sale slow. *Beeswax* not wanted; in fact, there is no sale for it here.

Apr. 16. J. A. SHEA & CO.,
14 & 16 Hennepin Ave., Minneapolis, Minn.

PORTLAND. *Honey.* There is no change to note. Fancy extracted white, 1-lb., 18; other grades less; 2-lb., white, 16. Not much demand. *Beeswax*, scarce at 30.

Apr. 12. LEVY SPIEGL & CO.,
Portland, Or.

SAN FRANCISCO. *Honey.* Honey in light supply, and we quote: Extracted, 5½@6½; comb, 10½@12. For the latter, the demand is improving a trifle. Prospects for the coming crop are not very good as far as honey is concerned. *Beeswax*, scarce 25@26.

SCHACHT, LEMCKE & STEINER,
Apr. 23. San Francisco, Cal.

CHICAGO.—*Honey.*—Fancy comb honey selling at 16c; choice, 14@15. Other grades 10@13. Extracted scarce, good demand, 7@7½. *Beeswax*, active sale, 28c. S. T. FISH & CO.,

April 29. Chicago, Ill.

Bee-Keepers' Supplies.

Hives, Honey-Cases, Sections, and Frames. We are the only concern in Southern California who make a

SPECIALTY OF BEE-KEEPERS' MATERIAL.

Agents for the white basswood 1-lb. sections. Send for catalogue and price list.

6-13db **Oceanside Mill Co., Oceanside, Cal.**

☞In responding to this advertisement mention GLEANINGS

PRICE LIST OF BEE-HIVES.

	8-fr'me. 1½-st'y.	10-f'me. 1½-st'y.	8-fr'me. 2 st'y.	10-f'me. 2-st'y.
In lots of 5	72c	82c	87c	97c
In lots of 10	69	79	84	94
In lots of 25	60	70	75	85
In lots of 50 .. .	58	68	73	83
In lots of 100 ...	57	67	70	80

The reason we can sell so cheap is that lumber is cheaper in Minnesota than any other State in the U. S. The above prices are for Dovetailed, Simplicity, and three other styles. Send for catalogue.

F. C. ERKEL, LeSueur, Minn.

Please mention this paper.

Engine and Boiler For Sale.

A six-horse upright engine and a ten-horse horizontal steel boiler. They are both complete and in fine condition; have been used only about six months. Boiler arched in. Both are W. B. Dunning's make, Geneva. N. Y.

Also an 18-inch Feed-Mill, French buhr, of A. W. Stevens' make, Auburn, N. Y. Sheller, Elevator, Shafting, Belting, Pulleys, and a fine lot of Simonds saws, cut-off and rip, from 5 inch up to 18. Two Vandervort Foundation Mills, 6 and 12 inch, steam melting-apparatus, etc. The whole outfit is nearly new, and in fine condition. Will be sold at a bargain. Write for particulars.

G. W. BALEY & SON,
9tfdb **Ovid, Seneca Co., N. Y.**

Please mention this paper.

A Four-Color Label for Only 75 Cts. Per Thousand.

Just think of it! we can furnish you a very neat *four-color* label, with your name and address, with the choice of having either "comb" or "extracted" before the word "honey," for only 75 cts. per thousand; 50 cts. per 500, or 30 cts. for 250, postpaid. The size of the label is 2¾x1 inch—just right to go round the neck of a bottle, to put on a section, or to adorn the front of a honey-tumbler. Send for our special label catalogue for samples of this and many other pretty designs in label work.

A. I. ROOT, Medina, O.

THE Bee-Keepers' REVIEW

FOR 1892 AND A FINE, TESTED, ITALIAN QUEEN, OF LAST YEAR'S REARING, FOR $1.75. EITHER ALONE, $1.00. FOR $2.00, THE REVIEW, THE QUEEN AND THE 50 CT. BOOK, "ADVANCED BEE CULTURE," WILL BE SENT. W. Z. HUTCHINSON, FLINT. MICH.

P. S.—If not acquainted with the REVIEW, send ten cents for three late but different issues.

SPECIAL MATED

queens reared under the swarming impulse in our Texas apiary, and mated to very yellow drones. Queens and drones from two of the best queens in Texas. All queens warranted purely mated. One queen, Apr., $1.25; 6 for $6.00. May, one queen, $1.10; 6 for $5.50. Our **5-Banded Italians** are the best workers, most gentle and beautiful bees. Safe arrival and entire **Satisfaction Guaranteed**, circular free. **S. F. & I. TREGO, Swedona, Ill.**

In writing to advertisers please mention this paper.

---

50 CENTS WILL BUY A GOOD 2-STORY L. Hive. $1.00 Will Buy 100 L. Brood Frames. $1.00 Will Buy a Nice Golden Italian Queen. Please Write for our Circular Before you Buy your Supplies.

W. H. BRIGHT, Mazeppa, Minn.

Please mention this paper.

FOR SALE—100 COLONIES

of Italian and hybrid bees in 8-frame Langstroth hives. Price, for Italians, **$4.00**; hybrids, **$3.50** each, free on board cars here. A liberal discount for more than five colonies. I guarantee safe delivery. THOMAS GRIMM, Jefferson, Jeff. Co., Wis.

9-10d Please mention this paper.

BEE SUPPLIES RETAIL —AND WHOLESALE.

Everything used in the **Apiary.** Greatest variety and **largest** stock in the West. New catalog, **54** illustrated pages, free to bee-keepers. **E. KRETCHMER, RED OAK, IOWA.**

In writing advertisers please mention this paper.

DOVETAILED HIVES AND ITALIAN QUEENS.

Send for price list of Italian Queens, Drones, Hives, Smokers, Foundation, etc. Finest breeding queen, after March 1, $4.00. Tested, $2.00; 3 for $5.00. Untested, in April, $1.00; 6 for $5.00, or $9.00 per dozen by mail. Safe arrival guaranteed. Orders for Queens booked for 20 days or more, 5 per cent discount. Make money orders payable at Clifton.

3tfdb **COLWICK & COLWICK, NORSE, BOSQUE CO., TEXAS.**

☞In responding to this advertisement mention GLEANINGS.

CARNIOLAN BEES AND QUEENS. They beat them all. Never have dysentery. All queens reared from select imported mothers. Untested, 50c; 12 for $5.00. Tested, $1.00; 12 for $10.00. Select tested, $1.50. Descriptive circular free. **A. L. LINDLEY, Jordan, Ind.**

8-13db

PRICE $2.

(POSTPAID).

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ELMER HUTCHINSON

Has moved to VASSAR, TUSCOLA CO., MICH. He can furnish untested queens in April and May, raised from one of his Golden Italian 5-banded queens, that took FIRST PREMIUM at the Detroit Exposition the last two years, for $1.15 each, or 6 for $5.00. Orders will be filled for me in April and May by a queen-breeder in the South, who has one of my best breeding queens. Orders promptly filled and safe arrival guaranteed. Make money orders payable at Vassar. 7-12db

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POSITIVELY

By return mail, beautiful young warranted Italian queens, at $1.00 each. Tested, $1.50. A select tested yellow-to-the-tip breeder, $2.00. Satisfaction guaranteed. **W. H. LAWS, Lavaca, Ark.**

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ITALIAN QUEENS.

Queens reared and tested in the fall of '91, $1.50 each. Safe arrival guaranteed.

Misses S. & M. BARNES, Piketon, Ohio. 7-8-9d

Please mention this paper.

DID YOU EVER SEE

One of our 5-banded red-clover queens? 100 lbs. of clover honey in poor seasons. Send for descriptive circular free. LEININGER BROS.,

7tfdb Ft. Jennings, Ohio.

FOR SALE. 100 double-walled hives, new, nailed up, painted, set sections and holder included, $3.00 each; a great bargain. Order at once. One Novice honey-extractor. 8-9d

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Porter's Spring Bee-Escape.

We guarantee it to be the best escape known, and far superior to all others. If, on trial of from one to a dozen, you do not find them so, or if they do not prove satisfactory in every way, return them by mail within 90 days after receipt, and we will refund your money.

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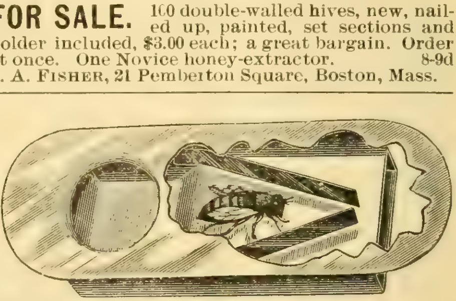


☞In responding to this advertisement mention GLEANINGS

GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS.

ILLUSTRATED SEMI-MONTHLY

PUBLISHED BY A. I. ROOT.

$1.00 PER YEAR MEDINA OHIO

Vol. XX. MAY 1, 1892. No. 9.

STRAY STRAWS

FROM DR. C. C. MILLER.

THAT LEAD-ZINC-OCHER paint mentioned on p. 287 makes a very handsome finish.

FREE DELIVERY of mail would be very handy for bee-keepers in rural districts, in the busy season.

GEO. W. YORK is now assistant editor of the "old reliable" *A. B. J.* A good man for the place, and a nice fellow.

D. L. TRACY, Longmont, Col., says no one in Colorado can raise honey for 1½ cents, the actual cost being about 7 times that.

HUTCHINSON has made a success with his little pictures, and the short sketches add interest. Wish he'd get a picture of Hasty.

STILL THEY COME. The *National Bee Gazette* will make its bow to the bee-keeping public May 7, hailing from St. Louis, Mo. Don't know who is to straddle the tripod.

REVIEW YOUR FIGURES, Mr. Editor, and see if that heading on page 290 shouldn't read "One-half more honey to winter outdoors than indoors," instead of "one-third."

I WAS SURPRISED to find that considerable alfalfa seed is being sold to farmers about Marengo, this spring. I shall be still more surprised if it makes any difference in my honey crop. I'm quite willing to be surprised.

MINNESOTA goes to the head of the class as a hatcher of new bee-journals. Two inside of a year. The last is *The Bee Age*, Spring Valley, Minn., the editor being no less than our friend B. Taylor. Nothing sleepy about him.

"PAST EXPERIENCE," says *B. B. J.*, "tends to prove that the best honey seasons are late ones." Hope that may prove true this year, for up to April 22 we're having mostly March weather in this neck of the woods.

ECHINOPS SPHÆROCEPHALUS is highly recommended by a writer in *Centralblatt*. In this country, I think, it is not considered of value enough as a honey-plant to pay for cultivation. It was largely tried, but who raises it now?

SPRING DWINDLING, the *B. B. J.* thinks, is not so likely to occur in a backward spring. This accords with the view I have expressed, that it is best for those who winter in cellars to keep the bees in till time for dwindling is past.

AMERICAN BEE-KEEPERS, according to R. Riecken in *Centralblatt*, are able to care for 150 colonies per man, often double that number, and harvest an average crop of 45 to 60 pounds comb, and 100 pounds extracted per colony. Hasn't the "Bruder" got that a little steep?

TOOK OUT BEES April 7, when they had a good fly, but maple bloom was either killed or past, and bees could do nothing. Very cold nights, ending up with a snow storm the 14th. Might have been better to have left bees in later.

THAT BEE-ESCAPE of Larrabee's has one one point, I think, in its favor, that he didn't mention on page 282. The large space connecting super with hive, separated only by wire cloth, makes the bees more ready to go down than if the only communication were one little hole.

TILE DRAINAGE, that exceedingly well-written little book by Prof. Chamberlain, is more interesting than many novels, and should be read by every farmer and farmer boy. They'll learn something from it besides drainage. I've just read it through, and I know a good bit more than I did.

ARTIFICIAL HEAT in cellars is objected to by some. Last winter I thought I would try doing without. Found I'd made a fool of myself again. Worst loss for years; 41 per cent died in shop cellar. House cellar is warmer, and the loss was less than 12 per cent. If it had been a severe winter I suppose it would have been still worse.

THE THREE SINGLE EYES of bees have been a puzzle as to their use. Mr. Grimshaw, of England, starts the theory that they are not eyes at all, but bull's-eye lanterns that emit a very feeble light to guide the bee in its work at night. Such production of light is quite common among insects, and the source of the theory gives it some title to respect, for Mr. Grimshaw is an able observer.

"IN WORKING SECTIONS at the side of the brood-nest, the bees cluster on the sections nights and dull days, and that is what stains the cappings," says A. B. Mellen, p. 282. That may be true to some extent, but if your brood-combs are all new built you'll not find the sections much darkened. I'm pretty sure the worst darkening is from bits of the black brood-comb actually used in sealing the sections.

EXTERNAL CAUSES that induce swarming, Larrabee says, "are, an unusual and increasing number of bees in the hive, presence of a honey flow of some degree, drones, etc., one or all. Wild animals seem to breed at stated seasons, because taught so by instinct, but are bees guided by that instinct?" That clears it up in good shape. I understood it "external" to the hive, while he meant "external" to the bees.

AFTER TRIAL I am quite pleased with the plan of wedging up sections in the T super. But I think I like my plan better than yours, Ernest. My wedges are the same length as the followers by ½x¼ inch, and I don't twist them after inserting. Just push one end of the stick down to the bottom at one end of the super, and then lower the other end to the upper surface of the sections. I consider it important to have the stick long.

MUCH IS SAID about the convenience of being able to shift the outside sections to the center of a super and vice versa. I don't think I ever want to shift them thus. It takes time, for one thing, but that's not the greatest objection. A section moved to the outside row is not finished so quickly and nicely as if left in the center. Don't move a section in a super till the mass is finished, then take off the whole thing, and return the unfinished ones in another super.

HONEY VINEGAR.

HOW TO MAKE; BY DADANT & SON.

Friend Root:—Mr. Louis C. Jessing wrote us lately, "Please tell us in GLEANINGS how to make honey vinegar, taking us over the ground step by step, as it were, from the time the honey-water is made, to the time when it will be good strong vinegar; also how long it will take, kind of building used, etc."

There are, in the formation of vinegar, two kinds of fermentation. The first transforms into alcohol the sugar, or saccharine matter of the liquid used; the second changes into acetic acid the alcohol produced. The germs that cause alcoholic fermentation exist around ripe fruits, and, to some extent, in honey, and develop best at a temperature of about 75 to 80 degrees. The second fermentation, which develops acetic acid, finds its germs in the atmosphere, and may take place almost immediately after the other has begun, and long before the saccharine matter has been all transformed into alcohol, so that the mixture may be sweet, alcoholic, and sour, at the same time. It looks rather contradictory to say that a liquid is sweet and sour; but that is often a fact, nevertheless. The more prompt and thorough the alcoholic fermentation, the more readily will the liquid be transformed into vinegar when the acetic fermentation begins.

Honey does not contain the germs of fermentation in sufficient quantity to make a thorough alcoholic fermentation; and when mixed with water and left to itself it will require several months to convert the mixture into an alcoholic beverage, and several months more to change it to vinegar.

If we are not in a hurry, we may succeed in making good vinegar by filling a barrel half full of water, adding 2 lbs. of honey to the gallon of water, and a few gallons of fermented or unfermented cider, keeping it in a warm place, and covering the bunghole with wire cloth or with a piece of thin cloth, which may keep out insects and dust. By this method half a barrel of honey-water may be changed into good vinegar in two to six months, according to the temperature.

As we sell vinegar to our neighbors, but do not care otherwise to keep it for sale, we have been in the habit of keeping two barrels for vinegar. One contains the oldest vinegar, from which we draw for use; the other contains the souring liquid. As we are growers of grapes, and make wine, we are in the habit of fermenting a certain amount of honey-water in our wine-cellar, and this is used only when it has already undergone the alcoholic fermentation, and sometimes with the addition of a little wine, which gives it color, and adds to the good taste of the vinegar. This mixture is kept in the second barrel, both barrels never being more than half full; and as fast as we take vinegar from the first we add to it an equal quantity from the other.

When honey-water has been made in such a way as to make it impossible to weigh the honey—for instance, by washing cappings or honey-utensils, barrels, cans, etc., we test its strength with a fresh egg, which should float, just showing itself at the surface.

The best method to induce a prompt and thorough alcoholic fermentation in honey-water is to mix it with a large quantity, the more the better, of crushed fruit, such as cherries, berries, grapes, apple pumice, or even with the pumice of grapes, commonly called "cheese," just after the fermentation of the grapes. The more fruits are used, the more thorough the fermentation. The mixture should be kept at a high temperature in vats or open barrels covered only with muslin or some light cloth, and the vessels should be filled only about two-thirds, so as to avoid loss, as the mixture rises like bread, during fermentaton. As soon as the turbulent fermentation is over, the liquid should be drawn into barrels. This is usually after a week or so, if the temperature is right. The barrels should not be filled more than half full, as the liquid must be exposed to the air as much as possible, in order to hasten the acetic fermentation which is fed from the atmosphere, as said before. The addition of a gallon or two of strong vinegar will induce a more prompt acetic fermentation. Good authorities also recommend the use of vinegar mother—a slick, slimy substance found in vinegar, and which is said to be decomposed vinegar. This vinegar mother is taken from an old vinegar-barrel, washed clean, cut into pieces, and these are added to barrels of forming vinegar.

After the vinegar has undergone the main acetic fermentation, if it becomes necessary to transport it or to put it into closed barrels, it should be racked, or drawn from its lees. If cloudy, it can be made clear by putting in each barrel the white of an egg, and stirring it with a stick. It will not become entirely clear until the last fermentation is nearly all over.

Honey vinegar is far superior to the best cider vinegar, and can compete successfully with the very best wine vinegar.

There are only two drawbacks to the making of vinegar. It takes a great deal of room, and it spoils all the barrels that are used. The acid eats up the iron hoops wherever it happens to leak, and the wood is often bored full of holes by worms, when not in use.

There is a quicker method of making vinegar on a large scale, but this requires a special building and apparatus. We will give it to your readers, however, if desired. In making vinegar as above described, any ordinary shed, such as is used for a cider-press, will do, if used during warm weather; and to keep the vinegar, any ordinary cellar is suitable; but, as we said before, a temperature of about 80 degrees will best aid the making of vinegar.

Hamilton, Ill., Apr. 1. DADANT & SON.

EUGENE SECOR

AS A BEE-KEEPER, BUSINESS MAN, OFFICE-HOLDER, AND POET.

The convention of the North American Association to meet in the city of Washington, in the year 1892, is to be presided over by the Hon. Eugene Secor, of Forest City, Iowa. The ancestors of the Secor family, refugees from the religious persecutions of the Hugenots, came from France in 1681, settling in New Rochelle, N. Y. In 1841 Eugene was born in Putnam Co., N. Y., and it was his good fortune to be kept there on a farm until he attained his majority. In 1862 he went to Iowa, entering Cornell College at Mt. Vernon. A brother, who was county treasurer and recorder, as well as postmaster, enlisted to hold up his country's flag, and Eugene abandoned his college course to take charge of his brother's business, thus occupying two years. Had his health been more robust, he probably would have borne his brother company in the army.

Asked what his business is, aside from bee-keeping, Mr. Secor replies, "When the bees are not swarming, and no public duty calls me, I 'recreate' by running a real-estate and abstract office in the daytime, and writing for the papers at night." Let me schedule the public offices which he has filled for the past 25 years, and it will not be hard to see that hardly more time could be allowed for the real-estate and abstract business than to make it a "recreation."

In 1868 he was elected clerk of the District Court, Winnebago, Ia., and was twice re-elected, serving six years, having been deputy a year previous. In 1875, elected county auditor; re-elected in 1877, making four years' service. In 1878, elected mayor of Forest City, where he still lives; and at the expiration of four terms as mayor he was elected a member of the city council, which position he still holds.

At the age of eighteen he became a member of the M. E. Church, where his services have been in demand. He has officiated as leader of the choir, is one of the church trustees, is also steward, and was elected by the "conference" of the church one of the board of trustees of Cornell college, to which position he has been re-elected to serve a second term of three years. He is a member of the executive committee of that board. He has reached the highest position to which a layman can attain in the M. E. Church, being elected a lay delegate to the General Conference. Nor are his religious works strictly confined to his own church, for he is president of the County Bible Society.

He has borne his share of the burden of educational matters in his own city, by acting as a member of the school board and being president thereof.

In spite of his special interest in apiculture he has a leading hand in agricultural matters, having organized the agricultural society of his county (Winnebago), of which society he was president for two years, and in 1888 he was elected by the State legislature one of the board of trustees of the State Agricultural College, to serve a term of six years. He is chairman of the executive and finance committee in said board.

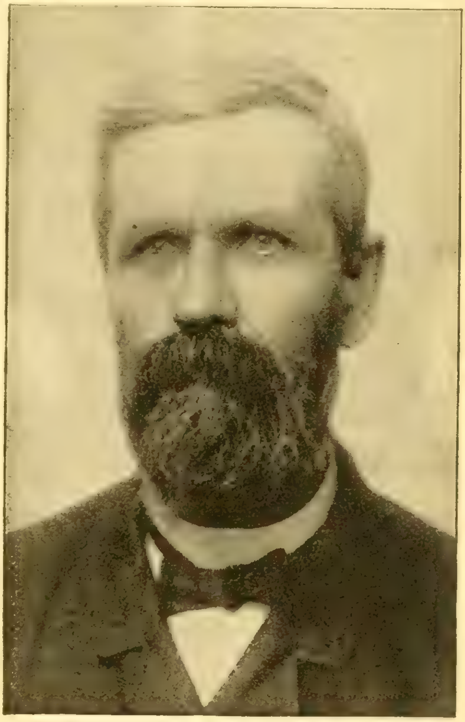
The State Horticultural Society has shown its appreciation of his services by re-electing him as president of that society and giving him charge of one of its experiment stations. The State Bee-keepers' Society elected him president in 1891 and 1892.

However busy he may be at other things, he will have to find time in June to go to Minneapolis as one of the two delegates from the 10th District to the National Republican Convention, to help nominate a candidate for president of the United States.

Bee-keepers are more or less familiar with his business-like style in apicultural writing, and he has been a somewhat irregular contributor of prose and poetry to the *Iowa Homestead*, *Housekeeper*, *U. S. Dairyman*, to all the bee-journals, to horticultural papers, local papers, etc. He was apicultural editor of the *Iowa Homestead*, and now he holds the same position on the *Farmer and Breeder*.

As a writer of verse, it is to be regretted that he sometimes shows a reckless disregard for the laws of grammar and versification; but the true spirit of poetry is in him, and bee-keepers may well be proud of him as their poet-laureate. Indeed, wipe out of existence the bee-keepers' songs written by Eugene Secor, and there is little left worth their singing. The great trouble is, that he writes only as the spirit moves him, and the "moving" seldom comes. A year or so ago he sent me a single stanza of a bee-keepers' song (urged to the writing, I think, by Dr. Mason), asking me if I thought it would do. Of course it would do, and I advised its completion. That's the last I ever heard of it. It may never get further than the first stanza, and it may be completed. If it is, it will be a good song.

Most of the readers of these pages are more or less familiar with the poetic writings of Mr. Secor, and he has been especially happy in his dialect songs. Take that one in which the good-natured German has been hearing the big stories of what bees will do with little or no care. He gets a colony of bees, and then sings, care-free,—



EUGENE SECOR.

Oh, I ish von of dose happy bee mans,
I don't got to vork any more;
I loafs all day on der apple-tree shade,
Or shmokes mine pipe on der door.

More or less of this vein of humor seems ready to bubble up at all times in his writings. Even the tortures of la grippe have for him a funny side, and he writes,—

I don't feel well. I can not sleep.
The chills along my backbone creep.
I'm tired and nervous. I go home
And call the doctor, who, when come,
Says, "Grippe."

Then after describing how himself and all the neighbors are affected in all parts of their internal economy by microbes or bacteria, he thus earnestly apostrophizes:

Ye microscopic sinners, go
Where ye belong—that is, below.
Haunt us no more forever, please,
Thou Russian, Frenchified disease,
La Grippe.

After all, I like best the poems which show his tender side. I think the right kind of a heart never grows old, and Eugene Secor's heart seems to be of that sort. The poem, "A Love Letter," finely shows this tender side, with a quaint touch of the humorous. No proper idea can be had from any short quotation; but after a description of his anxiety to meet again his loved one, that involuntarily pictures to your mind the ardent young lover, he ends up:

For love is in the *present* tense, no *future* doubts can chill;
Besides, the one who longs for me, 'twixt anxious hopes and fears,
Has been my wife and true love, lo! *these five and twenty years.*

While you smile at the neat little trick that has been played upon you, on discovering that it is a grandfather, and not a youth, who is talking, the whole effect is such that tears are very near the surface.

If room permitted, "My Sweetheart" (his sweetheart was the baby), "Papa, Come Home," and others, might be mentioned. But I can not forbear the mention of just one more, "Father, Hold my Hand." After picturing a little one tucked in for the night, with her many odd questionings, finally ending with the request, "Papa, will you please hold my hand?" the poem ends:

When I lay me down for that last long sleep,
And bid all my loved ones good-night,
Shall I my sweet faith in the Father still keep,
And trust him to bring me to light?

Shall I rest my hand in my dear Savior's own,
And all my vain questionings cease?
Or shall I go out in the silence alone,
When death doth my spirit release?

But to the last question I am sure the poet would make answer:

Ah, no! I shall *not* go in silence alone.

Spare in form, somewhat above medium height, iron-gray hair and beard, Mr. Secor's whole appearance impresses you as belonging to a man of force; but in another respect the face belies the man, for it gives the impression of inflexible sternness, with no hint of the genial, kindly nature that lies back of it. Modest and quiet in demeanor, you might be with him for some time without finding out what he was.

Mr. and Mrs. Secor seem proud of their two daughters and two sons; but the latter, although men grown, have been so sadly neglected in the matter of accomplishments that neither of them smokes cigarettes nor belongs to a base-ball team.

A bee-keeper of twenty years' experience, Mr. Secor's many other duties forbid his going beyond the number of about 75 colonies, and these he has mostly in eight-frame Langstroth hives.

Marengo, Ill. C. C. Miller.

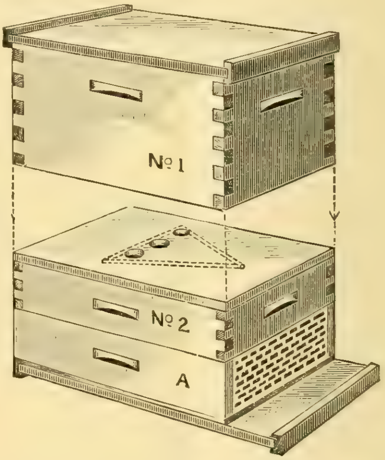
AUTOMATIC SWARMERS, AGAIN.

PRATT'S VERY LATEST.

Bro. Root:—I send you by this mail a model of another application of the swarmer. The sketch above will illustrate how it is applied to any loose-bottom hive. No. 1 is the hive containing the colony expected to swarm. No. 2 is an empty super or honey-case set on a rim of any width, which is shown at A. This rim has one of its ends removed, and a piece of excluding zinc covers the opening and forms a very wide, light entrance.

The super and rim rest on the bottom-board exactly as a hive-body would; and the board having the triangle bee-escape is placed (zinc down) on the super—just as you would apply a bee-escape board to any hive. The apex to the escape should point to the front of the hive toward the entrance. Over all is at last placed the colony expected to swarm. When they do swarm, the queen will be trapped in the lower apartment, and the returning swarm will join her there, after missing their queen.

This arrangement does away with the extra hive and stand, and is nearly as cheap. The only drawback to it is, that it can not be applied to a tight-bottom hive; but perhaps the men using these hives would be willing to cut two or three auger-holes in the bottom-board of them for the sake of checking swarming, or they could shift the combs up into the upper story and use the old hive to catch the swarm in. A zinc honey-board, first placed on the bottom-board, and the super to catch the swarm placed over this, will answer the same purpose as the rim with one end covered with zinc as shown at A, but there would not be depth enough to hang in frames for the bees to work on.



PRATT'S LATEST AUTOMATIC SWARMER.

If one has a surplus of hive-bodies they can be used to catch the swarm in, and the zinc honey-boards will work in well for them.

My patent lies in trapping the queen in a new hive and causing the swarm to join her by the entrance they have become used to working through many days before the swarm issues.

Beverly, Mass. E. L. Pratt.

[We believe that the swarmer above illustrated is considerable of an improvement over the one formerly presented to our readers by Mr. Pratt, good as it was. The feature of the latest one is, that both hives are supported by the same bottom-board, and this makes it unnecessary to level up an extra bottom-board in direct line with the other. The plan seems to be specially adapted to the Dovetailed hive. It is well known, that two of its supers make an equivalent to one body, and that the same can be used for holding the ordinary brood-frames. All we need, then, is a perforated escape-board situated between Nos. 1 and 2 as above, and an extra super with one end open, covered with perforated zinc. While we have not tested either one of Mr. Pratt's devices, from a theoretical point we believe they possess features not found in any other.]

ARE THE BEES OF ITALY YELLOW-BANDED ?

IN WHAT PART OF ITALY THE YELLOW BEES ARE FOUND IN THEIR PURITY.

Following a statement of a correspondent, that he had been from one end of Italy to the other and failed to find any yellow-banded bees, you seem to have questioned his veracity, with a result that a controversy has sprung up. Now, as a matter of fact there are very few yellow-banded bees in the country known as "Italy;" and, what is more, there is no mountain or other barrier to keep them from mixing with black bees; consequently they "shade off" to blacks.

If you have a copy of Frank Benton's "Bees" [if you have not a copy you will find a reprint in the *British Bee Journal*, on page 81, for March 1, 1885] you will see that in it he says: "A few years ago there was quite a discussion in the American bee-publications as to whether black bees existed in Italy or not, and very likely many are not yet clearly informed in regard to this point. An examination, however, of back volumes of the leading Italian bee-journal, *L'Apicoltore* (Milan), would set this point at rest in the minds of all, for plenty of Italian writers on bee culture have stated that very dark bees, not possessing the three yellow bands, exist in various parts of the peninsula and on the adjoining islands. In that portion of the central plain having as its northern limit Bergamo, its eastern limit Nerana and Mantua, the Apennines on the south, and on the west Milan, we find Italians in their purity; also below the Apennines between Genoa and Rome. Outside these regions they shade off into hybrids."

Native black bees also exist in Liguria; so you will see, by reference to a map of Italy, that you can travel from the extreme length of that country without meeting with native yellow-banded bees; therefore it will be seen that the word "Italian" is clearly not the name they ought to have been known by, and is sufficient to explain why I prefer to call the new race I am getting from Tunis "Punics," instead of Tunisians.

The Romans learned agriculture from the Pœnians, and it is highly probable that they introduced the bees cultivated by the Pœnians, because the black bees of Italy more closely resemble the Punics than the German race; but where did the yellow-banded race come from? I am satisfied they did not originate on Italian soil. Probably the Romans, struck with a difference in color, imported some yellow bees; and these, being put in one district, and multiplied, have maintained their yellow blood because it preponderated in quantity; therefore all yellow-banded Italians are imbued with black blood, probably Punic, or, at least, a dash of it, which has caused them to be liked.

One reason why I think this is so is because preference is always given to dark or leather-colored bees, for gentleness and working qualities—these dark bees, of necessity, having most black blood in them; hence, if this dark blood is so valuable it is nothing but logic to go to the fountainhead and get it in its purity in the shape of Punics, and let the yellow bands slide by; for no known pure yellow race has turned out quite satisfactorily. Where the Italian yellow bands came from I know not—probably the original race, which is most likely—has had some other race of bees fused with them, and may be now known as Cyprians or Syrians.

I think the bee-world ought to find a nice short name for yellow-banded bees from Italy. The best of them came from Switzerland. Why not give them the English name, "Ligurians"? It was used here before they reached America. It may not be correct; but it can be understood to mean only yellow-banded Italian bees.

CAN PUNIC QUEENS BE SOLD AS CHEAPLY AS ITALIANS ?

Judging by the letters at hand from readers of GLEANINGS who have addressed their letters, as per my *nom de plume*, many want to try the Punics, but they say the price is too high in America, and seem to think they can get them cheaper here. Of course, I am pleased to hear from any one who wants to give Punics a trial; but I don't want them to run away with the idea that queens can be reared in England as cheaply as they can in America. In the first place, the climate is against us for the work. But in rearing Punics there is another difficulty to contend with, to get pure mating—and all ask for price of tested queens—viz., that, if any strange drones are on the wing within six miles it is almost impossible to get pure mating, no matter how many drones one may have flying. I cautioned friend Pratt about this at first, and he subsequently found it out, that, no matter how easy it might be to mate Italians and Carniolans true, it was no easy matter with Punics until drones were generally killed off, and then mating to preserved drones.

There are three plans I am following, besides requeening all my neighbors' stocks all around with pure Punics; viz., to raise queens early, before other drones get on the wing; do it late, after drones are killed off, and between these to resort to the Mohler system; in fact, the latter will be used the whole season through, so that my untested queens will have a fair chance to be all purely mated; but all this means trouble and expense, which, of course, has to be paid for.

I am also arranging for the exclusive use of an island in the Atlantic, and expect to obtain good results in the way of sending *hand-picked* drones, to mate with selected queens; thus if I can't secure individual mating I shall at least get it to one out of a selected number. What I am aiming at is to supply queen-breeders with true breeding queens, and not to supply every one with a cheap queen; i. e., try to undersell American breeders who have every thing in their favor. A HALLAMSHIRE BEE-KEEPER.

Sheffield, England.

[We find, by looking at the map, that our Italians, and, in fact, about all the Italians that have been imported into this country, have come from the region described by Mr. Benton as having nothing but pure Italians. It is of but little importance to us whether there are any black or hybrid bees in certain parts of the peninsula or not; but it is a fact, nevertheless, that all the Italians we have received since we have been in business have been nearly uniform in color, markings, and general characteristics. It is very possible, as you hint, that the Punics may be closely related to the dark Italians. We have Punic queens in our apiary now, and we shall take pleasure in watching them very narrowly this summer. We doubt, however, whether we shall be able, or, rather, whether it would be advisable to attempt to raise dark bees in our locality, since it is so thoroughly Italianized—that is, permeated with yellow blood. As the Punics look so much like black bees—that is, to the average bee-keeper—it will be very difficult to tell when we have pure stock, on account of the general prevalence of the German bees throughout the United States.]

RAMBLE NO. 58.

IN THE SAGE BRUSH.

The Hotel Temescal is the center around which South Riverside revolves. The South Riverside Land and Water Company have developed a water supply from canyon and from artesian wells, and propose to make a city equal to famous Riverside, fifteen miles to the north. South Riverside has a population of about 800, is rapidly growing, and so are the hundreds of acres of young orange and lemon trees; and in time the town will amount to something.

I inquired of mine host whether he knew where Mr. Edward Bonfoey lived; and in the morning he conducted me to the west end of the hotel veranda, and, pointing across the mesa to the Santa Ana Mountains, said he, "Mr. Bonfoey lives in that white house on that plateau away up on the side of the mountain."

"Well," said I, "Mr. B. roosts in an elevated position. I should say that I have a two-mile walk to get there."

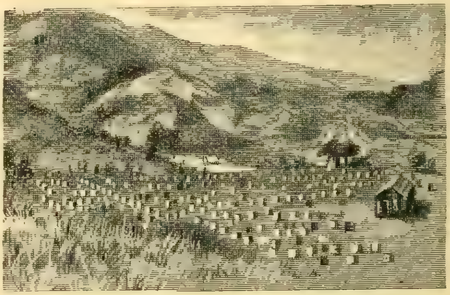
"Yes; and when you walk it you will find it over four miles. The atmosphere is so clear in this country that objects many miles away appear not half the distance they really are. A mountain twenty miles away appears really to be only ten."

I soon started for Mr. B.'s by rapidly putting one foot before the other across the mesa.

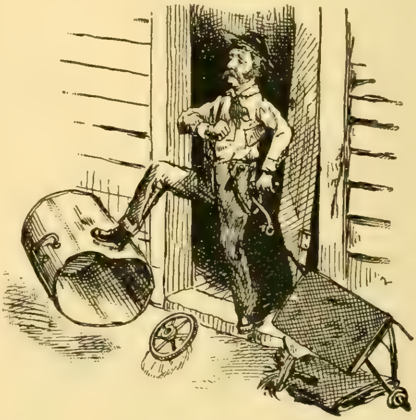
Another beauty of this new country is its fenceless condition. There are no little stifled two-acre lots hegded in by stone walls, rail fences, and hedge-rows of elders and briers; but the pedestrian can strike across the country in a bee-line for the object to be attained, and find but few obstructions to his onward march. After an invigorating walk of about an hour the foot of the mountain was attained. A sharp climb of about half a mile up a graded zigzag road put me on the plateau and at the residence of my friends with whom I had become acquainted at the convention in Los Angeles. I was greeted by two not very ferocious dogs and Mr. and Mrs. Bonfoey. The residence of our friends is like thousands of such houses in California where the family has started a home and is improving the wild surroundings to make it some time in the future a place of beauty and value. The house is a simple one-story cottage, with front and rear room with canvas partition, and a lean-to for a kitchen. The visitor needs a little caution about leaning back against the walls. An inadvertent leaning against the canvas would result in the catastrophe of suddenly going into the next room unannounced. The houses here are not built for warmth, but merely for a place to gather to at meal time and at night, and the Rambler has seen scores of houses in the embryo form of a tent, and others with a light frame covered with cotton cloth.

We soon visited the apiary, and were met several rods away by several skirmishers. They followed us in, and, with their reinforcements, obliged us to resort to veils and smoke. Mr. Bonfoey and wife have a joint apiary of about 260 colonies.

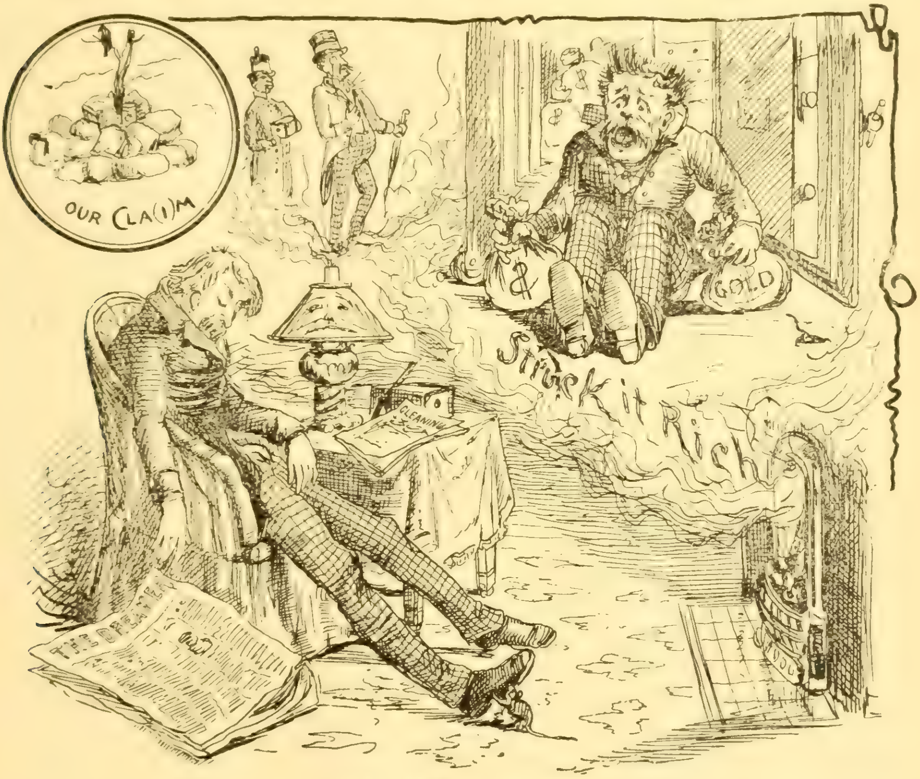
There is a little spice of romance in the establishment of this apiary. Mr. B., a young man, had a small apiary, so also had a young lady schoolteacher some bees. They put them together and ran them for a season. But it happened after a while that the young man, every time he tasted honey, would think how sweet that schoolteacher looked with that gypsy hat on; and the teacher, every time a bee passed by her, imagined it to be a Cupid. Such a condition of things naturally led to the calling-in of the parson, *and now that apiary is just booming.* The apiary is very nicely located on a little plateau down the mountain from the residence. It has the usual California honey-house, a building about 10x12, a honey-tank, and a large sun extractor. Mr. and Mrs. B. manage their apiary for comb honey, and put upon the market a gilt-edged article. Their yield during the past season was light; but the bees were in good shape for another year. At the time of our visit, about Nov. 1, they were flying very lively, but getting no honey. October and November are the dryest months of the year; the long dry season is near its end, and rains are soon expected, to replenish the earth again.


THE BONFOEYS' APIARY IN CALIFORNIA.

This apiary is in the genuine sage district; and to my inexperienced eyes the pasturage seemed to be unlimited. The flowers that yield honey here are, first, in March, alfilaree, mountain mahogany, lilac, and manzanita; in April and May, balled sage and white sage; and, a little later, sumac and wild buckwheat. It would be impossible to adequately describe the acreage of these plants. The apiary is at the entrance to the Hagadorn canyon. Let us ramble for a mile into its winding way and behold nature's handiwork. The entrance is quite broad; and out of it, and extending far across the mesa, is the dry bed of a creek (dry now, but a torrent in the rainy season), and called the *wash;* and wherever you find it there is an


"WHEN THE EXTRACTOR DIDN'T 'GIVE DOWN' IT WAS KICKED ALL OVER THE APIARY."

abundance of honey-producing plants peculiar to it The semblance of a road follows the wash, now in it or on the right or the left. The sides of the mountain soon draw closer, and rise in many places so steep and rocky that even vegetation recoils from the dizzy heights. The further we penetrate, the more obstructions we meet in the form of stones and a scrubby growth of bushes, and we have to scramble and wriggle our way along. At length we reach an old deserted lime-kiln, and halt. We might pursue our course up the canyon for several miles, or until the summit of the range is reached. These upper ranges are unoccupied bee-pasturage, and will be for a long time, as a road can not be maintained in the canyon without great expense, on account of the annual wash-outs it receives. Opposite the lime-kiln, in the perpendicular face of the rocky mountain-side, was a genuine California bee-cave with a small entrance, and of unknown depth. The bees were streaming out and in as though there were immense numbers within their safe abode.



THE RAMBLER DREAMS.

About every two hundred yards the main canyon was entered by side canyons of greater or less depth and length. The whole mountain was thus cut up into ranges and peaks, and the multiplied surfaces covered with sage and other honey-producing plants. There is no timber on these mountains except a few scraggy live-oaks, and thus the honey-plants have free range. The water company's pipes for obtaining water are laid far into the canyon, and I was surprised to find one of them nothing but common stovepipe. In our eastern climate such a pipe for conveying water would soon rust out. The pipe itself would last a long time here, but it was also preserved by the lime and other ingredients held in solution in the water, which in a short time completely line the pipe with a rocklike substance.

When we emerged from the Hagadorn we entered another smaller canyon and found the apiary of Mr. De Pee. The owner lives in a very romantic place in the mountains, and is surrounded by all of the comforts of life. The apiary I must, however, say was in a dilapidated condition. The hives were unpainted and full of cracks, and were leaning at various angles, their entrances showing unmistakable signs that skunks were doing their share toward running things. The honey-house was a rough shed with the door awry, and roof-boards off. The general wreck and ruin of the place was probably owing to the fact that the apiary was in charge of a helper who runs things on the rare-and-tear principle. When the extractor didn't give down properly, it was kicked all over the apiary. The hives were probably not kicked around much, but the little oak-trees looked as though they had been subjected to a hard time. Still, this apiary produces honey, and any quantity of absconding swarms.

Having seen all of the bees in the vicinity, we next turned our attention to locating a mining claim. Various kinds of minerals crop out of these mountains; and Mr. Bonfoey, seeing unmistakable signs of something having the possibility of millions in it, proceeded to lay claim to it. He first stated in writing his claim in full, adding his signature, to which also was appended the Rambler's name as witness. This document was then inclosed in a tight tin can. We then built a monument in the center of the claim, the claim extending 750 feet north and south, and 300 feet east and west from the monument. We first stuck up a scraggly pole, then piled a large number of stones around it, placing the tin can and the document near the top. This gave fair warning to everybody that we had laid claim to all that was valuable on that piece of land, all the way down to China. The Rambler has a share in the mine for lifting some of those big stones, and expects at no distant day to strike it rich.

Thus in airy castle-halls of gold and precious stones dreams the RAMBLER.

SPRAYING FRUIT-TREES WHILE IN BLOOM.

SOMETHING THAT SETTLES THE MATTER.

Mr. Editor:—I read with great interest the discussion on this question, which occurred at Albany, and was very glad of the outcome of that discussion. I am sure that bee-keepers owe nothing but the kindliest feelings to Prof. J. A. Lintner. He is one of our most able, most candid, and most cautious entomologists. He had previously believed that it was unwise to spray fruit-trees while in blossom, and had advised that no one do so. At Washington, it seems, several entomologists expressed the opinion that there was no danger to bees in such early spraying. I regret that official duties as secretary of Section F prevented my being present at the discussion of the entomological club, where these sentiments were expressed, or I should surely have corrected them, and should have shown that they were erroneous, as I could easily have done from careful experiments which we have made here at this college. Prof. Lintner, supposing the points made to be well grounded, changed his opinion and resolved in future to advise spraying at any desirable time, without reference to blossoms or bees. But before acting, he came before the bee-keepers and expressed his convictions and the reasons for them. Upon hearing the opinions of bee-keepers, and learning of their experience, he at once changed his decision, and will continue as before to advise all to spray with London purple or Paris green only after the blossoms have all fallen from the trees. Surely there was a fairness and candor about all of this which rightly claims our respect and admiration. From a long acquaintance with Prof. Lintner, it is just what I should have expected.

I regret that I could not write you earlier regarding our experiments in this matter, which I am sure settle the question beyond doubt; but you know how four months' absence from home fairly swamps a man with work. This, together with larger classes than usual, have given me no time till now to consider the matter and write you the facts.

Mr. Elwood's article shows that he, one of our best-informed apiarists, as well as Dr. Lintner, feels that the matter is in an unsettled state, and pleads for more experiments that we may know the exact truth in relation to this important matter.

I am very happy to give you in advance the experiments which we have made, that I am sure will convince all. These are now in type, and will soon appear in the Report of the Michigan State Board of Agriculture, so there is no need that any other station should demonstrate these facts, except that, the more that do such work, the sooner will the results be known to the people, and the sooner will practical results be obtained.

Let me premise by saying that, in several cases in Michigan and other States, especially Illinois—States where the value and safety of spraying were first demonstrated, and hence where spraying has been most general—there have been serious losses of bees at the time of apple-bloom. Not only did the mature bees die off rapidly, but there was extensive mortality of the brood. These colonies were strong, and had survived the period of the so-called "spring dwindling." Every well-informed experienced bee-keeper like Mr. Elwood knows that such mortality at such time was previously unknown. In every case, large orchards in the immediate vicinity had been sprayed with the arsenites while the trees were in bloom. Previous to this I had tried several experiments in feeding bees sweetened water, with the common London purple and Paris green of the drugstores added in the same proportions that we use it for spraying. In every case the bees were poisoned. Yet they did not die at once; indeed, they lived many times longer than would be necessary to carry the poisonous liquid to the hives and store it there. This explains why the brood is also poisoned. As these people wrote to me of their losses—quite a number have done so, and from at least three States—I had no doubt that the spraying at the wrong season was the cause. 1. The poison would do it, as I had repeatedly proved; 2. The poison was thrown on to trees while in bloom, and the flowers had been freely visited by the bees; 3. Such loss of bees in this manner and at this season was entirely unprecedented in our bee-keeping history. I at once recognized the danger, informed the bee-keepers directly interested, proclaimed through the bee-papers the dangers that threatened bee-keepers, warned fruit-growers of the danger, and urged them for their own interests, as well as for the good of their bee-keeping neighbors, *never to spray while the trees are in bloom.* I have also tried to secure legislation that would prevent such untimely spraying.

No bee-keeper need be told that negative testimony counts for little in this matter. That some one has sprayed his trees while in bloom, and yet no bees were known to be lost, would deceive an entomologist who was not an apiarist; but a bee-keeper would know that the spring is often so cold that the flowers secrete almost no nectar, and the bees are often unable to fly at all. While, then, in many cases, spraying the trees while in bloom would cause no loss, yet in another case when the weather was mild so that nectar was abundant, and the bees out in force, the loss would be most serious. I presume this explains the reports from the entomologists at the meeting in Washington.

Our experiments the last summer, already in print (Report of Michigan State Board of Agriculture. 1891, p. 127), are as follows:

HOW STRONG SHALL WE USE LONDON PURPLE?

Some years ago we tried a series of experiments to determine the minimum strength of London purple or Paris green that would surely prove effective in the destruction of insects. The conclusion was, that 1 lb. to 200 gallons of water was as weak as we could safely use it. This year we repeated the experiments. We used two species of oak-caterpillar—*Anisota stigma*, and *Anisota senatoria;* a hairy caterpillar on the oak—*Halesidota tesselata;* the cabbage caterpillar—*Pieris rapæ;* the potato beetle—*Doryphora tenlineata*, both larva and imago, and the honey-bee. All except the honey-bee were treated outdoors, on the plants or trees, and all, including bees, were fed in cages in the laboratory. We used the London purple, 1 lb. to 200, to 300, to 400, and to 500 gallons of water. In every case 1 lb. to 200 gallons of water was quickly fatal. The weaker mixtures were not satisfactory, especially on the older larvæ and the imago. The weakest mixture, 1 lb. to 500 gallons of water, failed to do thorough work in every case. The other mixtures, 1 lb. to 300 gallons of water, and 1 lb. to 400 gallons of water, were tardy in their action, and did not do the execution that 1 lb. to 200 gallons did.

One lb. to 200 gallons of water killed the honey-bees and the imago potato-beetles almost invariably within twenty-four hours. We find that larvæ succumb to the poison more quickly than do imago, and that young or small larvæ die more quickly than do older ones. Thus our experiments agree with those previously made in fixing upon 1 lb. to 200 gallons of water as the most desirable proportion to use in all cases. There is so little difference between London purple and Paris green that the same strength should be used with both poisons.

POISONING BEES.

We see from the above that the standard mixture—1 lb. of either London purple or Paris green to 200 gallons of water—is fatal to the honey-bee. This makes it imperative that fruit-trees be not sprayed while in blossom. It may be done just before or at any time afterward, *but never during the time of bloom*.

The above, written last October for our Report for 1891, settles the matter positively. When we add, that during bloom is not the time to spray; that for bud-moths and fungi it should be done earlier, and for the codling moth later—not till the blossoms have fallen from all the apple-trees—we thus see there is no possible excuse for spraying while the trees are in bloom; while there are very important reasons, as we have just seen, why no one should spray while the blossoms are still on the tree.

It has seemed to me, and I am now stronger in the faith than ever, that every State should pass a law making it a serious misdemeanor to spray our fruit-trees while in blossom. I do not think such a law would need to be used much, if ever; but as an educator it would do signal service. It would act as our foul-brood and yellows laws have. When men find that there is a law against any proposed course of action, they will almost always hesitate before they act. In a case like this, where there is no cause for wrong action, but every reason for doing that which will work no one ill, but the most good to all, then surely if a legislative act will have influence it should be urged by all, whether directly interested or not. Is it not wise for every bee keeper to agitate this matter, that the public may be educated at least, and that such legislation may be secured as will aid to prevent any spraying during the time that the fruit-trees are in blossom?

Agricultural College, Mich. A. J. COOK.

SPACE UNDER FRAMES FOR WINTERING.

FIRST SWARMS, ARRANGEMENT OF HIVES, ETC.

W. Z. Hutchinson says there is one point that ought not to be neglected in preparing bees for winter—that of leaving a space below the combs. I am sure he is right. We have been practicing the above for several years now, and know that it has been a great benefit to our bees. Before raising them, many colonies would become clogged up at the entrance, both in the cellar and out of doors, long before spring. If in the cellar it would be impossible to clean them out. We could clean the entrance for a little way back in the hive, but they would soon become clogged up again. Such colonies that were thus clogged up seldom came out in the spring in good condition, and many of them would die in spite of being carefully nursed.

Mr. Hutchinson recommends a rim two inches high. We use but one inch to 1½ inches, and find that sufficient; but we raise the hive two inches or more at the back, which enables the bees to drag out the dead bees and keep the bottom-boards clean. Bees are tidy little housekeepers. It seems to worry them to be in a situation where they can not keep their hives clean; and for this reason I would not let the rim extend clear round the hive unless there were an entrance under the front of it, as the bees that fall in a hive should be in a position where they can be easily dragged out. If they remain in the hive and mold, it causes the bees to become diseased; and if it is unhealthy for bees, what must it be to human beings living above them? Yes, we think he speaks truly when he says this space is a wonderful aid in bringing the bees through the winter in fine condition.

Our bees do not now seem to be dying off so much as in the first part of the winter. They seem more quiet at the same temperature, and we do not see any difference as yet in the loss of bees from those wintering on honey-dew and those on sugar syrup.

"I saw it stated in a paper a short time since that the first swarms were the ones that furnish the honey. The parent colony rarely lays up more than enough to supply them with food." Now, in our experience if a swarm is put into an empty hive with all their combs to build, the swarm would not get as much surplus as the parent colony would; so it depends altogether on how we treat the swarm, whether it gathers more or less than the parent colony. Were I purchasing bees I think I should as soon take the parent colony as the swarm.

In the picture where Mr. Root is represented as sitting on a hive with several hives around him near enough to work without rising and walking from one to the other, is a good suggestion. In order to do much work we need to study economy of steps, which saves time, just as a thrifty housewife does. The person who runs back and forth from pantry to kitchen, and from cellar to garret, with no thought how she may save her steps, accomplishes but little work compared with one who economizes her steps as well as her time. But as to the slates or tablets on top of the hives, I am sure I should jostle them around so much I should lose all they were meant to indicate. Probably Mr. Root means us to sit still.

I have such an abhorrence of any thing "wapperjawed," or mixed up together, I must say that the straight rows look the prettiest, and I believe I should prefer them for looks' sake if it did take more time to manipulate them, and were not quite so handy. Sometimes I have need to pull two hives together, but they are always an "eyesore" to me until I get them squared and trued up again.

Brother A. I. says we know he has always been interested in wells and springs; but we have wondered, when reading, what he was *not* interested in. He gave us a very interesting account of our brother's, Samuel Axtell's, home in South Dakota, next station west of Mitchell, more than we had ever learned of the country in all brother's letters; but they do sometimes have terrible blizzards. About five or six years ago three of brother's boys, young men, started to their own farm, three miles away, one morning; and by the time they had gone half a mile a blinding blizzard caught them, and they could proceed no further, neither could they go home. As they were near a deserted house they unhitched their horses and went in. For three days they were unable to leave that house. One of them, who had a wife and children, risked his life and went back home; but the other two preferred to remain rather than run the risk of being lost in the storm, although they had nothing to eat, and no feed for their horses, and had to keep on the move much of the time to keep from freezing.

A sure sign of swarming, says the *Canadian Bee Journal*, is the backward and forward movement of the bees upon the alighting-board.

I have often noticed the same shaking movement; but instead of a backward and forward movement it was from one side to the other, holding on to each other by their fore feet, wiggling their bodies from side to side with all their might. I used to think they would swarm the same day, or soon, but they did not always. I noticed their wiggling in that way this summer in our home apiary, where we had but one swarm, and none from that hive. I should like to know what makes them wiggle so. They act like a lot of little children who are wonderfully pleased over something.

Dr. Miller's big brush is all right, provided he can get the grass and weeds (which we can generally get, all we need, and more); but in one of our out-apiaries this summer we could get but very little of either grass or weeds. The ground was so bare that we retained the old brush and gathered what we could and wrapped around it, making it fresh on the outside.

In the *Fancier's and Breeder's Journal* it is mentioned that Mr. Root says, in convention, I think it was the Northwestern, that it is unprofitable for bee-keepers to breed for any pure race, as many of his customers asked for hybrids and would have nothing else. If hybrids are really as good for honey-producers as the pure race, then why change more for the pure? Our experience is, that, in a real good year for honey, a good hybrid will gather as much as a pure colony; but in a poor year the pure colonies are ahead, and are much easier handled—that is, the Italians. MRS. L. C. AXTELL.

Roseville, Ill.

[There is no question but that the space under the frames, especially for cellar wintering, is a good thing. We arrive at the same result by leaving off the bottom-boards and piling the hives on top of each other in such a way that the one above stands over the space between the two others below, *a la* Boardman.

The reporter in the *Breeder's and Fancier's Journal* must have got things pretty badly mixed when he quoted us as saying that it was unprofitable for bee-keepers to breed for any pure race. We have never knowingly given utterance to such a statement. We might have said that bee-keepers as a class do not make any very great effort to keep their Italians strictly pure.]

ALFALFA, OR LUCERNE.

THE STATEMENT THAT IT IS CUT BEFORE IT BLOOMS IS ALL FOLDEROL.

I have noticed with considerable interest that the quality of lucerne honey is coming to the front, as we in this section consider it equal to the best honey produced anywhere. Now, what I wish to say is, that we have a continuous honey-flow from it, commencing about June 1st and lasting from three to four months. We do not know what it is to have a poor season for honey. Of course, some seasons are better than others; but we always get a surplus. All this talk about cutting lucerne before it blooms is all folderol, so far as this section of country is concerned. A farmer who would cut his hay before it bloomed would be looked upon in about the same light as one who would cut his grain before it was headed; and there is so much difference in time of cutting after haying has commenced that some are cutting their first while others are cutting their second crop. In fact, we are haying all the time for three or four months. And, besides, there are thousands of bushels of seed raised which is cut only once, generally the latter part of September or the 1st of October, and then our roads and ditches are completely lined with some which is never cut at all. We also have sweet clover, but the bees do not work on it any more than on the lucerne.

RUNAWAY SWARMS OCCUPYING HIVES WHERE BEES HAVE DIED FROM FOUL BROOD, AND PROSPERING.

Did you ever hear of bees going into an old hive where the bees had died with foul brood? About a year ago I was called upon by my neighbor, Mrs. Streeter, to look at her bees. She had two swarms which were all dead, as I found on examination, having apparently died with foul brood. I was surprised, a few days ago, when her son came and asked me to come and look at the bees again. I asked him if his mother had bought some more bees, as I supposed she had cleaned up the old hives as I advised her.

"Oh, no!" said he. "The bees have all come back. They stayed away only about three or four months."

I went and found bees in both hives, one having a good strong swarm, while the other had only a few robbers. I did not think it possible for them to thrive in such a hive of combs as those. E. M. WHITING.

Mapleton, Utah, Mar. 14.

INCREASE BY PURCHASE VS. DIVIDING.

HOW TO SECURE INCREASE BY SPREADING THE BROOD.

On page 893 of last year's GLEANINGS Mr. A. C. Brown, of Smithfield, Tex., asks if it would be cheaper to buy bees at $4.00 per colony or divide, using full frames of foundation, and feeding sugar syrup to have it drawn out. And on page 131 of this year's GLEANINGS is an article from L. Stachelhausen, "How he does it;" but he fails to give the information asked for.

I will endeavor to give Mr. Brown what light I can on the subject. 1. As soon as it will do, or as soon as the nights are warm enough not to chill the brood, go through your 45 colonies and spread the brood, placing one or two empty combs in the center of the brood-nest. In seven or eight days go over them again, doing the same thing, keeping the unsealed brood as near the center as possible, this time drawing one or more frames of brood from the stronger colonies, and give them to poor ones. Repeat this once a week until all are strong, and at the same time feed, if necessary to keep up brood-rearing. Now you are ready for increase. Your queen-cells should be ready, about eight or nine days old. Now for the divisions. Take from each colony the queen with half the brood, honey, and old bees. Place them in a hive on a new stand, closing the entrance with wire cloth for 24 hours. Now open up, and the most of them will remain. Now look through the others; destroy all queen-cells, and introduce your queen-cells, which should hatch in two or three days. In one or two days look through to see if all are right. If any cells are torn down, replace them. Now fill your hives with full sheets of foundation. Never use starters if you can avoid it, as they will be filled out with drone combs.

When they are ready for the upper story, fill it with frames of foundation; raise one or more frames of comb from below as baits; crowd the frames rather close at first, spreading them as they are drawn out, placing outside ones in the center, and you will have nice straight combs drawn in due time. I think you will find that they will cost you a great deal less than four dollars per colony, besides the experience and fun you have. I can't side with our Texas friend. I have no short cuts, but find that I get well paid for all fussing that I can do. I should like to read more from our Texas brethren, as our State is so different from others.

Linn Grove, Texas. Z. S. WEAVER.

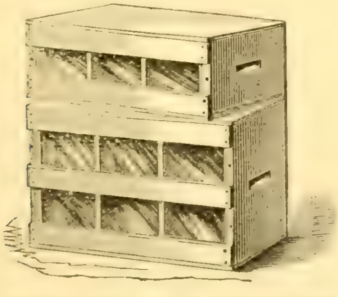
[The instructions given above are good in the main; but for the benefit of beginners, perhaps some limitations ought to be made. There is much danger in spreading brood. Many times we have cold nights and days, even after we *think* the weather is settled for warm. The result is, the brood is killed and the colony is set back. As a general thing it is best for beginners to let nature take its own course. Mr. Weaver's plan for dividing the bees may work, but we prefer to do it this way: Put the queen, one-third of the brood, and two-thirds of the bees on the new stand. A large part of the bees, not used to the new stand, will return to the old one. The consequence will be, that each stand will have about an equal division of bees. The new stand will have one-third the brood; but it has the queen, and therefore the power to go right on with brood-rearing, while the old stand with two-thirds of the brood will have to wait until they can raise a queen; therefore they ought to have the more brood.

We tried this plan of dividing last season, and it worked very nicely. As a general thing we secured about an equal division of the bees, and both colonies would increase to about the same strength, both having equal advantage in the first place as near as we could make it.]

SHIPPING-CASES.

THE ADVANTAGE OF A DOUBLE-TIER CASE OVER A SINGLE-TIER.

One way of making our honey look well, so as to find a ready market, is to have a nice shipping-case—one that will show off the honey to the best advantage, and insure its safe shipment, even if it costs a trifle more. I know that, at the present price of honey, the cents have to be counted pretty closely. But the question is, whether we lose or gain in the long run. The shipping-case was brought up for discussion in the Chicago convention, and I believe the majority present were in favor of the single-tier case.



12-LB. SINGLE-TIER AND 24-LB. DOUBLE-TIER CASES.

We have always used the double-tier case holding 24 sections, and perhaps for that reason I am prejudiced in its favor. I know it costs a little more, and hence many condemn it. Perhaps we ourselves may some day. But I don't believe there is any other case that will show off the honey to as good advantage as the double-tier 24-section case. There is less wood and more honey shown by it than by any other case I know of. Many say it does not ship well, and I presume they are right about it as they use it and as we formerly used it. We piled one tier of sections on top of the other, letting the upper tier of sections rest on the lower ones; and I must say, using it in that way is very objectionable; for, do the best you can, you are likely to have a sticky, dauby mess of it, as there will be broken sections unless every section is exactly square; and even if it is, there will still be the weight of the upper sections resting on the lower ones, which is sometimes a severe strain with the bumping and jolting they must undergo in the cars. But as we use it we do away with all these objectionable features, and the only objection I can see to it is its cost. It does cost more. But, doesn't it pay? We have always thought so.

Our cases are made for 24 sections 4¼x4¼x1 15/16, using 12 sections in a tier. Between the two tiers we use a board 13¼x7⅞x¼. Each tier is separated into three compartments of four sections each by two little boards measuring 4⅜ *long* by 7⅞x¼. It will be seen that these little boards project ⅛ inch higher than the sections, so that the board between the upper and lower tiers can not rest upon any of the sections. Practically it is the same as six separate cases of four sections each, with all the advantages of a double-tier case.

I think no one will deny that these cases do look nice. They are a nice size to handle easily, but their main superiority is that they show so little wood and so much glass and honey. For that reason they look better than any other case I know of.

To begin with, it is not possible to use as wide glass in the single tier as in the double. Now look at the cut. You will see that, in place of the one central cleat in the double-tier case, there must be four pieces of wood in the pile of two single tiers, 12 lb., the cleat and the bottom of the upper case and the cleat and top of the lower case. If cleats 1¼ inches wide are used, and 1¼-inch stuff for tops and bottoms, then you have 1¼ inches of wood in the one case against 3 inches in the other—less than half as much. As we now use sections 1⅞ wide, the dimensions of our cases will have to be changed. EMMA WILSON.

Marengo, Ill.

RETAILING-CASES FOR COMB HONEY.

HOW TO IMPROVE THE APPEARANCE OF THOSE RETURNED.

Those who ship their honey away to be sold on commission in some distant market, and never expect to get the empty cases back again, will find nothing to interest them in this article. There may be some, though, who, like myself, sell a great deal of honey direct to grocers, and expect to get the cases back and use them over and over again. These may like to read something on how to keep them neat and presentable. Very likely you are getting many of them back from the grocers about this time, so I will speak of it now, though it may seem a little out of season.

Some grocers will keep a case so neat and clean that it can be used several times before it begins to look dingy and dirty. Others will return a case so daubed and smeared and stained that it seems as though every thing that could stick to it was represented there by sample. After this has been scrubbed off, it still looks so dingy that your thoughts turn to paint.

I used to paint all my retailing-cases with regular oil paint. A dark color shows off the honey best, and shows dirt the least, so I settled on a very dark blue as the best color for the purpose. When I came to repaint them, which is often needed, to keep them looking well, I found that ordinary paint dried too slowly in winter to suit me. The cases would seem perfectly dry; but somewhere, in the handholes on the lower edges, there would be a little paint that would rub off, and a little of that intense blue paint went a long way. So I adopted asphaltum varnish. This is very cheap —cheaper than paint—and a couple of coats of it produce a rich glossy black that contrasts well with white honey.

One of its chief merits is that it dries so quickly that any thing painted with it may be handled in an hour. Its fault is, that it is easily marred; but a coat of it thinned with gasoline is readily applied whenever necessary, and dries very quickly. Sometimes a little rubbing with furniture polish is sufficient to make it look new again. Carriage black is more durable than asphaltum, but is more expensive.

If you want to letter or ornament your cases, it may easily be done with a stub pen and thin brown japan. For larger letters a wide shading-pen may be used. Unless you are an expert you will probably find a pen better than a brush. Just before the letters are dry, brush over them a little gold or bronze powder.

Blue and gold or black and gold make a very pretty combination. Probably a painter could improve on my methods. If he will tell us how to do so, I shall be glad. A very important point in selling honey is to have it look nice, and a neat case helps greatly in this.

The large retailing cases will do very well in some stores, but most groceries rather prefer a smaller one-story case that may be easily moved around, carried out of doors, or set on the counter or shelves as they prefer. For their convenience the cover should drop into rabbets instead of being simply laid on top, so that it may be easily kept in place. J. A. GREEN.

Dayton, Ill., April 5.

DOUBLING OUR COLONIES, ETC.

PLAIN DIRECTIONS FROM DOOLITTLE ON HOW TO INCREASE NATURALLY AND ARTIFICIALLY, AND HOW TO SECURE A CROP OF HONEY.

A correspondent writes, "I have three colonies of bees in Root's L. hives, and wish to increase them to six this coming season, and secure all the honey in sections possible. How shall I proceed?" If the correspondent is so situated that he can allow natural swarming, I would say, put the sections on as soon as the hives are full of bees, and when little bits of new comb are being built here and there about the hive, this showing that new honey is coming in from the fields. Now, if the hive is full of bees, and no little bits of comb are being built, I should withhold the sections till I see these bits of comb; for if put on sooner, the bees will be quite liable to gnaw or eat holes in the foundation given in the sections; for bees seem to have a mania for doing something when they are populous by way of tearing things to pieces, on the principle that "Satan finds some mischief still for idle hands to do." On the other hand, if I see bits of comb being built before the hive was full of bees, I would withhold the sections till there were plenty of bees in the hive; for if the sections are put on before this, much of the heat required for brood-rearing will go into the sections, thus keeping the colony from increasing in strength as fast as it otherwise would. When swarms issue, set the hive to contain the new swarm on the stand occupied by the old colony, moving that to a new location, when the bees are to be hived into the new hive, and the sections transferred from the old hive to the new. In this way the new colony will immediately enter the sections and go right on completing them the same as if nothing had happened. In eight days after the swarm issued, open the old hive, when, as a rule, the young queen will be found hatched; and if so, cut off all the other queen-cells which may remain, thus knowing that all after-swarming is done away with. If the cells are cut out on the sixth day, as many recommend, you are not sure that after-swarming will be prevented, for the bees have larvæ that are still young enough to be converted into queens, which is often done when we have many after-swarms, only they are a little later in coming than what they otherwise would be. After cutting the queen-cells, put the sections on the old colony also, only I would not put on over half of the full capacity for section honey, as this old colony will not be liable to make as much section honey as it would if it had not been moved from its old stand; but both old and new will make more collectively by this mode of procedure than by any other with which I am acquainted. If I could not allow of natural swarming, then I would proceed as above till swarming time arrived, and the colonies were making preparations to swarm, when I would take three combs of the youngest brood in the hive, bees and all, being sure the queen was on one of these combs, and set them in a new hive, setting this hive on the old stand and moving the old to a new stand. I would fill out this new hive with empty combs if I had them; if not, with comb foundation, and transfer the sections from the old hive into the new. By leaving five combs of the oldest brood in the old hive, and all the bees which adhere to them and the hive, there will still be bees enough adhere to it to fully protect the brood so none of it will chill, as frequently happens by other modes of division, where too many bees return to the old stand. If no queen-cells are started in the old hive at the time of moving it, wait twelve days about cutting out the queen-cells, when we are to proceed as in the other case. In cutting off queen-cells it is well to shake the bees off the combs, otherwise some cells may be missed, in which case swarming will as surely result as it would had all been left on. The above is the way I work an apiary where I wish to double my colonies, and I like the plan much. If the hives used are ten-frame instead of eight-frame, then I would use four with the newly made colony, and leave six in the old hive.

"WHO WILL PROVE ME WRONG?"

On page 202 I find these words from the pen of E. France: "Young children, and all young living things, are apt to get out as early as they can, and exercise themselves; and would a young bee be contented to stay in the house during its youth and do housework? I can not believe it. I believe they go out as soon as they are able to do so. They want to go out and see the world—it's natural. On the other hand, the old bees, like other old folks, would be more inclined to stay at home and do the housework. I simply throw these thoughts out as a suggestion. Who will prove me wrong?"

I am very glad friend France throws this out only as a suggestion; for had he said positively that it was so he might have misled many. Young or old bees may be made to do almost any work not usually done by such bees, by throwing the colony out of its normal condition, as friend France did by taking the comb away from that swarm as fast as built; but, while what bees may do under such circumstances is interesting, yet what bees *do while in a normal condition* is what interests us the most. That young bees do this "housework" when the colony is in a normal condition is very easily proven, regardless of what Bro. F. believes. Give a black colony of bees an Italian queen about the tenth of June, and the first Italian bee will have hatched in that colony about July 1st. Now watch the entrance of that hive and see when the first yellow bees are seen at the entrance on the wing, and, unless all of my watchings have been in vain, none will be seen before the afternoon of July 6th or 7th; but put only hatching brood in a hive, and young bees will be seen on the wing on the third day, thus showing that, when a colony of bees is in a normal condition, young bees do not go out "as soon as they are able." Next, look through the glass part of the hive, and you will see these young yellow chaps poking their heads in and out of the cells, showing that they are doing housework by way of feeding the brood. Now watch this hive every forenoon for nine days more; and, if I have made no mistake, no yellow bees will be seen going and coming with loads, but all black bees. Next, look in the sections where comb is being built and honey stored, and the most of the bees there at work are Italians, "doing housework"— building combs, don't you see? If this is not sufficient proof for Bro. F. that he is "wrong," let him make this one of his experiments also.

Borodino, N. Y., Apr. 20. G. M. DOOLITTLE.

UPWARD VENTILATION.

AND IN FAVOR OF ABSORBING CUSHIONS.

I should like to add my testimony in favor of upward ventilation. We have followed the practice many years, and have been so generally successful in wintering our bees that we consider it a very necessary feature. We winter out of doors, the hives packed in chaff. The propolis-covered sheets are replaced by woolen; and the rough cap which takes the place of the summer one is filled with chaff (not too full) held in place by cloth tacked over it. A piece some six inches square is cut out of the center of the cap cover, and over this is tacked wire cloth to keep out mice. This certainly gives every advantage for the escape of moisture. Perhaps I should mention that, over the whole, there hangs an A roof to protect from rain and snow. It is necessary to remove the woolen sheets in the spring as soon as the bees become active, or they will themselves begin the work of removing them.

"There is a great deal in location," said a bee-keeper who made us a call a few weeks since. "Now I know why you are so successful in wintering your bees," said another a dozen years ago as he stood in our apiary and threw out his arms to the encircling forest. But location, it seems to me, is not every thing. At the close of the season some years ago our apiary consisted of 61 colonies, and every colony in the spring was in fine condition. A bee-keeper a mile distant had 60 colonies in the fall, but had not a single one in the spring. I do not know all the reasons for failure in this case, but I am sure that, if our bees had, like his, been left unprotected till extremely cold weather, and the hives were full of frost, and then subjected to the disturbance of packing in chaff, I should have needed but that reason for failure.

I suppose the old "Wiley lie" is responsible for a part of this serious statement which may be found in the February *Atlantic*, in an article entitled "The Nearness of Animals to Man:" "Tame honey-bees have ceased to make comb since the apiarist has begun to furnish them with a good manufactured article." But where, I wonder, did the author find his authority for the rest of it, and for certain other affirmations quite as startling? For instance, speaking of the rearing of queens, "In order to provide for emergencies, several larvæ are reared in a single cell, which the old queen is never permitted to approach, since she is as jealous of these royal scions as was ever Persian padishah of his next of kin. For this reason they are kept in close confinement until they are needed."

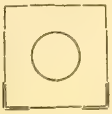
The article is extremely interesting, but it must be confessed that the author's bee-lore slightly impairs one's confidence. One can not but wonder what proportion of the whole is truth. NELLIE LINSWIK.

[You have had most excellent results in wintering; but is it not possible that you might have done a little better by having a larger entrance and a sealed cover? We hope that, for the sake of experiment, you will try two or three colonies next winter. So far our observation leads us to believe that sealed covers offer special advantages during the *springing* of the bees.

We become almost discouraged sometimes when we note how the Wiley lie still bobs up its head here and there in standard periodicals; and how such nonsense about bees as appeared in the February *Atlantic* could be inserted is beyond our comprehension. We know that it is almost impossible for an editor to compass all knowledge, and therefore to judge in regard to the accuracy of all statements made in sundry articles that pass through his hands; but why in the world can they not sometimes submit some of their so-called "science" to specialists? We hope that bee-keepers all over the land will send in a protest to the editor of the *Atlantic Monthly*, published in Boston, Mass. *We* shall certainly do so. The more bee-keepers there are who will take the pains to do so, the more effect it will have. We must not let such absurdities go unchallenged; and letters of earnest respectful protest from three or four hundred bee-keepers will have more effect than the protests of a dozen editors of bee-journals.

THE D. CASE—SEE GLEANINGS, PAGE 248.

Thanks for your naming the single case for me. Allow me to say that I now use a tin folded like this, L, put on the outside of the case, nailed at each end with a single ½-inch nail, with a string or wire around the middle of the case, which holds the tins snug in place to the sides, and the sides solid to the sections. When a string is used, better wax it where the bees can get at it, or they may gnaw it off.



SEALED COVERS PREFERRED.

Tell Dr. Miller I have been using tight sealed covers 20 years; in that time, I have tried porous covering 8 years on a part of my bees, by which I lost hundreds of dollars. Sealed covers as the bees prefer it is my way.

F. DANZENBAKER.

Washington, D. C., April 16.

ABSORBENTS VS. SEALED COVER.

As you have been advocating sealed covers I thought I would tell how my bees have wintered with absorbents. I put an even 100 colonies into winter quarters last fall in the home yard. They had a good flight early in March, and began breeding rapidly. To-day there are

97 booming colonies, and they are getting pollen quite freely. I use a support over the frames similar to Hill's device, and a crate with cloth bottom, filled with chaff and sawdust, instead of chaff cushions. Your sealed covers may be all right. I do not say they are not; but as long as I can winter bees with absorbents with a loss of only 3 per cent, just so long I am going to have upward ventilatiion.

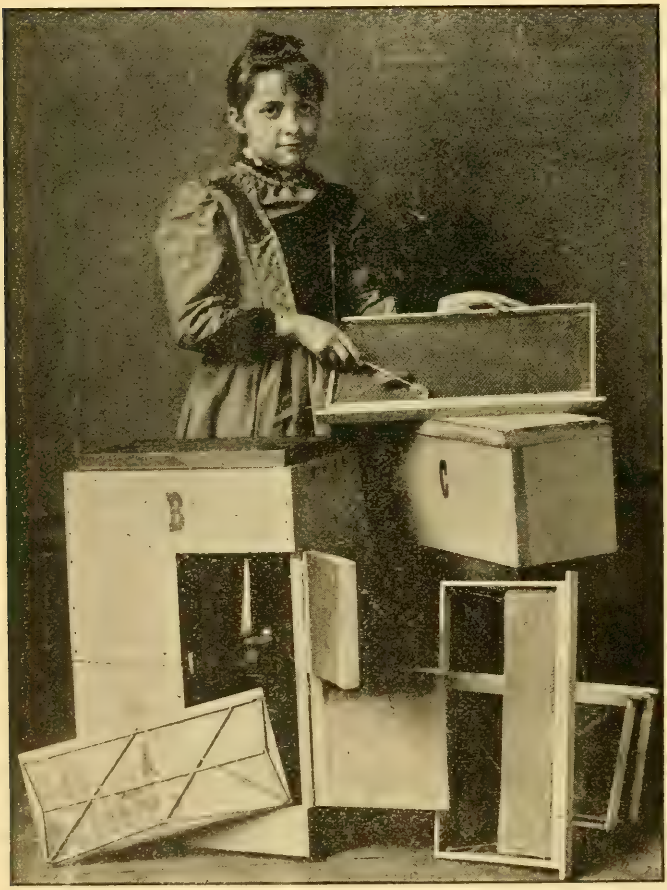
W. G. LARRABEE.

Larrabee's Point, Vt., April 8.

WIRING FRAMES.

J. A. GOLDEN'S PLAN.

Friend Root:—With your permission I should be pleased to present through GLEANINGS, to the bee-fraternity, my method of putting foundation in wired frames. To understand fully my method I send you a photograph, with explanation (how to do it, and be happy while doing it). I am aware that several devices have been invented, and some of them have worked fairly well; yet a tedious task and dissatisfaction is the result generally; while, if my mode is followed as herein explained, it will undoubtedly give the best satisfaction of any device ever presented to the bee-fraternity for the above purpose. We therefore take it for granted that the successful apiarists have systems all along the line of the various manipulations. By this class my device will be greatly appreciated; and now, friends, after you have looked at the accompanying picture of my device, don't think that you can perform perfect work on your first or second trial. You will soon learn that the press-board, or die, must not be too hot, however. A little practice is requisite as with all other devices, after which success will be the result.



GOLDEN'S METHOD OF PUTTING FOUNDATION IN WIRED FRAMES.

If Dr. C. C. Miller adapts his diagonal perpendicular style of wiring to my method he will make each frame a duplicate of each other. Thus, a board half an inch thick is cut out to fit your frame inside; cleats are nailed on one side to keep it from warping. Place this board in one of your wired frames, and, with pencil, mark each wire of your frame. With a saw, make incisions an eighth of an inch deep, and the same in width. Get a strip of iron one eighth by one inch wide, and, with a sharp cold-chisel, split it into three strips; then with a file dress them to one width. Cut them to suit the kerfs of your board; file notches at suitable places in each piece, so a medium small wire will lie in the notch. Place each piece in place, and, with a slim awl, make a hole on each side. At the notch a wire is put through, then with pliers twist the two ends, making the dies solid. See board A.

The heater, B, is a box 12x18 inches at bottom, 9x17 inches at top, and two feet high. All the above is outside measure. Several fourth-inch holes are made at top and bottom for ventilation. A sheet-iron top is made similar to a dripping-pan, 1½ inches deep, with a flange to nail on top of box B. The iron is perforated thoroughly to avoid warping when heated by a lamp which is used for this purpose. See box B. The foundation-stand, C, is a box six inches high. It fits the inside of your frame, with a groove cut at one top edge for the comb-guide to rest in when the frame is placed on the stand or box. Insets are cut where each wire-nail hook comes, so the wire will strike its full surface, and evenly over the foundation comb. This stand should be covered with a piece of oilcloth, with canvas side out, tacked on and kept quite damp, to keep the foundation from sticking, as it often does.

The comb-guide fastener, D, is a cog-wheel about an inch in diameter, molded of babbitt metal, or it can be filed out. The cogs are made beveling; the wheel is fastened to a metal handle, the beveled side of the wheel next to the wired sheet of foundation when in use, thus leaving the edge of foundation, after fastening, cell-shaped, and perfectly fastened. Please observe little Foda in the act of fastening the foundation to the comb-guide.

HOW TO PROCEED.

A lighted lamp is placed in box B. The press-board A is placed on the heater B, with metal dies down, and heated pretty warm. In the meantime place a sheet of foundation on the stand C, and then the wired frame over the foundation, pressing it down so the comb-guide will fit down well into the rabbet cut in the edge of the stand C. Now lift the press-board from the box B by two small cleats previously tacked across the back of the board, and place the same in the frame on the stand C. The metal dies press the small wires into the foundation, and at the same time melt the wax sufficiently to attach firmly the wire to the foundation. After a number of frames have thus been treated, heat the wheel D and finish the lot all at one heating. The frame containing the half-sheet, as you will notice in the engraving, is Root's extra thin surplus foundation. Friends, try it. J. A. GOLDEN.

Reinersville, O., Jan. 1.

[We have no doubt that you may be able to imbed the wires into foundation as you describe; but a far simpler way is, to heat those wires by running a current of electricity through them. See editorial elsewhere.]

PREVENTION OF SWARMING.

PUTTING A PERFORATED ZINC HONEY-BOARD UNDER THE BROOD-FRAMES; RESULTS.

A friend in Missouri, working on the problem of preventing swarming, asks my opinion of the following plan: Put a queen - excluder under the hive, having plenty of space under the excluder for the exit of the bees. Of course, no queen, young or old, could get out of the hive; and if the excluder is put under at the beginning of the clover harvest no swarm would escape, because no queen could go with them. Or, if a swarm were wanted from the colony, the excluder might be put under after the issuing of the prime swarm, thus preventing the issue of an after-swarm. Putting an excluder under is one of the things I talked over last fall; and while there are very serious difficulties in the way, I'm not so sure that it is not possible some use might be made of it. The two serious difficulties are, first, that all the drones would die in the hive; and, second, that no young queen could leave the hive for fertilization. Let us see how it would work. Suppose a prime swarm issues. The queen, not being able to leave the hive, the swarm is likely to return; but in some cases it might go into another hive or unite with another swarm. If, however, all hives in the apiary had excluders under them, there could be no real loss. Generally, though, the swarm would promptly return; and while in some instances the cells might be destroyed and the colony continue with its old queen throughout the season, the great probability is that the old queen would be killed on the hatching of the first young queen, if not before. I don't know just what would be done next; but I suspect that, no queen being able to leave the hive, all but one would be killed in perhaps two weeks from the issuing of the prime swarm. Then the remaining young queen would be a drone-layer if she laid at all. So it will be seen that the scheme can end in nothing else than the ruin of the colony.

But, can no use whatever be made of it? The first difficulty might be got over by taking Doolittle's plan—a plan that looked troublesome to me at first, but I'm not sure that it is not the least troublesome way, in the long run, of getting rid of drones. The plan is, to have no drone comb in the hive except perhaps an inch square in one comb; then when the drone brood in that patch is ready to hatch, slice off their heads, and repeat the slicing once in three weeks. Even if a very few drones should be hatched in other scattering cells, they would be torn to pieces after dying and would do no great harm.

But the other difficulty is more troublesome. True, the destruction of the old queen is not so serious a matter, and we could stand that well enough if we were sure she would be followed in good time by another laying queen. But that queen must be fertilized. Now, if my supposition is correct (that only one young queen would be left living in the hive), and if we could know just when that interesting consummation would occur, then we could take out the excluder and all would be lovely. But, alas! the ifs. We could not afford to go through the hive every day to see if the proper time had come to take away the excluder.

But it wouldn't need watching every day. How often would be necessary? Before finding out, we need to know two things that at present I don't know, but they might easily be found out. First, how long after the hatching of the first queen may we count on having only one young queen left in the hive? and, second, what is the earliest period after hatching that a young queen will be too old to be fertilized? or, in other words, how long may we keep a young queen confined without spoiling her chances for fertilization? I do not know this; but careful observation might easily determine it. A virgin queen sent to me from England when six days old was ten days on the way, and was then fertilized, and laid all right. So she must have been sixteen days old or older when fertilized. If she stood the confinement of the ocean voyage, would she not stand, at least as well, confinement in the hive?

Suppose, now, we put the excluder under before there is any danger of swarming, or at least make sure that eggs are in the hive when the excluder is added. Then we are safe in leaving the hive untouched for two weeks; for if we found eggs there, there was no young queen present—at least, I *think* that is correct. So, if we open the hive in two weeks we should never find in it a virgin queen too old to be fertilized—all the time supposing that every queen may be fertilized if confined till 16 days old. Then we might count ourselves all right throughout the summer, by looking into the hive once in two weeks, so long as we found eggs in the hive.

But if working for comb honey, I should not expect very long to find eggs in the hive after the time for swarming came. Suppose, then, that, on examination, a colony is found in which no eggs are present, and further examination reveals the fact that not only has a young queen hatched out, but that all the young queens have either hatched out or have been destroyed. If, indeed, several queen-cells should be found vacated, I should not feel so very anxious about there being any danger of swarming, and I think it might be safe to remove the excluder until the young queen was fertilized, or perhaps for the rest of the season.

Suppose, however, that one or more queen-cells are found with young queens in them, and a young queen probably free in the hive. It will not do to take away the excluder; and the question arises, How soon will it be necessary to make another examination? or, in other words, how long can we leave the excluder without danger of the young queen becoming too old to be fertilized? To know this, we need an answer to the question I have already mentioned, as to the length of time after the hatching of the first young queen before the workers give up the idea of swarming and allow all the extra queens to be killed. I wonder if it might not be safe to say that all would be killed within a week after the first young queen hatches. If so, then all we need to do is to look through the hive a week later if there is a plurality of young queens in the hive.

So on the basis that our suppositions are correct, we might agree to put excluders under, only to be removed when all young queens but one were destroyed, making an examination, once in two weeks so long as we found eggs in the hive, and once a week if eggs were lacking. But I am not very sanguine about all this. In the first place, our suppositions may not be correct; it may turn out that some young queens become too old to be fertilized before they are 16 or 17 days old; and it may be that a plurality of young queens may be tolerated in a hive longer than a week. If so, then the time of looking through the hive would have to be modified, and it is possible that so great a modification would be necessary that too much labor would be involved to leave any value in the plan. Besides, there are so many ways in which disappointment may come unexpectedly that only repeated actual trials with the bees can determine the matter.

After reading over to my assistant what I had written, she said, "But there is one difficulty that you haven't mentioned, and it's perhaps the most serious one. Will your excluders always exclude?" I very meekly replied, "I don't know." C. C. Miller.

Marengo, Ill., April 13.

[You have figured out, doctor, just about what a bee-keeper will find in practice with an excluding board between the brood-nest and the bottom-board. We have tried just that very thing; and the result was, that it would be covered with dead drones to such an extent in a week or ten days in the swarming season as almost to prevent the bees from passing in and out. You can prevent swarms from absconding; but that prevention means the killing of the old queen and the non-fertilization of the virgin queens following. While it does prevent the bees from running away, it does not check that *longing desire* to swarm; and when bees want to swarm, and can't, they will waste valuable time during the height of the honey season doing next to nothing. Perhaps some of our readers will remember some of our experiments along this line, as described in Gleanings two or three years ago, at our basswood out apiary.]

BEE-KEEPERS' PHOTOS.

HIVE-CARTS AND OUT-APIARIES.

While perusing some numbers of Gleanings last fall, and admiring your supplement containing cuts of so many prominent bee-keepers, my son suggested that it would be a good plan to cut out and paste on a card each face, and then insert them in an album for convenience, preservation, etc. I found, however, this was not practicable, as it would result in the mutilation of some of them, and also their biographical sketches, etc. I then and there resolved to ask you to present your readers with the faces of all now in your possession on a sheet of paper printed on one side only, with a short sketch of each below, so that we could carry out our proposed plan; or, if you choose, to print them on a separate card would be still better, and a small charge made for those desiring them.

Well, now, you see what delay means; for has not Mr. Hutchinson gone and done it, only in a trifle different manner, and now furnishes, as far as possible, a picture of his correspondents with each article contributed? It is scarcely necessary to add, almost every one thinks this a step in the right direction, including, of course, yourself among the rest.

BOARDMAN HIVE-CARTS.

Carts *a la Boardman* are a good thing. Yes, I am sure of it, at least for me. I now have one; and I like bee-escapes, honey-boards, properly spaced frames, etc. It is going to save time and backaches in this era of poor seasons and improved migratory bee-keeping. Each one will have to vary the construction of such a cart to suit himself, and this I have done without materially altering its appearance. I have some reasons for preferring it wide enough to lift a Langstroth hive by its ends instead of its sides; among others, my preference being in favor of placing the hive on the cart the same as on the wagon. Again, there is sufficient room for lifting two hives instead of one or two top stories or even a brood-chamber and a top story as the case may be, and carting both away at the same operation. The arrangements attached to the lifting-arms are not exactly alike for lifting off a top story and carrying a brood-chamber; but both are very simple, the only addition to any hive in use being the nailing on of a wooden cleat ⅜ inch square by 8 long, either to the sides or ends, as one chooses.

This cart is expected to assist me greatly in moving hives to and from the wagon, while moving the bees to the out-apiary; yes, I mean to take it right along with the team, by simply fastening it behind the wagon, so that it can be utilized, both loading at home and unloading in the orchard at the point of destination. I can also run around and pick off top stories when once cleared of the bees, by the escape system, and have lots of fun too.

MOVING TO OUT-APIARIES.

This brings me to the last part of my article; viz., moving to out-apiaries. Many have been the methods devised and illustrated in Gleanings for moving hives containing loose hanging frames; but the simplest and most expeditious way for any one not having very rough roads nor long journeys is to use a frame covered with wire cloth, the ends of said frame having a wire nail driven through from the top sufficiently far to penetrate each frame in the hive (say ⅛ of an inch), so that, after adjusting the screens, a little pressure will soon secure all the frames at once. I have moved bees many times without a single mishap to any of the hives themselves, except that I once smothered eight colonies on a warm day in June, notwithstanding the whole top of the hive was covered with a ⅞ rim as described, so that now I am a little skeptical in regard to so little ventilation being given as advocated by some, even in cool weather, unless a large space is also given for the bees clustering in.

The tying method given by you in Gleanings some time since is the only other thing necessary for expeditious work with such a hive, having tested and used it successfully not only with a single-story hive having a loose bottom-board, but with a two-story hive as well; consequently I use it with as much assurance now as any other thing or system I know of practical value in the apiary.

F. A. Gemmell.

[Hutchinson's scheme of having a small portrait of the writer at the heading of most of the articles for the *Review* is a good one, and since he has done it so admirably it will not be necessary for us to print a separate sheet giving a short sketch and portrait of some of our contributors; in fact, we already have practically that same thing in the last form of our A B C of Bee Culture. -Your hand-cart will no doubt be a good thing. The idea of having it tag on behind the wagon when going to and from out-apiaries is a good one.]

PROPOLIS ON T TINS.

HOW TO CLEAN IT OFF WITH CONCENTRATED LYE.

When we commenced work in the shop, the first super I filled with the nice clean sections, I looked at the T tins all covered with propolis and thought to myself, "If we are to have sections unstained by propolis it will never do to put them on these dirty T tins. But, oh dear! it will be an endless task to scrape them all. I can never do it." Just then a happy thought struck me. Why not boil the propolis off? Sure enough, why not?

I repaired to the kitchen, placed the wash-boiler on the stove (one we use for such work), filled it with water and T tins, then went back to the shop to work, and left them to boil at their own sweet will, delighted to think I had such an inspiration. In about an hour I went back to the kitchen to see how my T tins were progressing. I fully expected to see them all nice and clean, and was most bitterly disappointed to find that they looked even worse than they did when I put them in, as the propolis was more evenly distributed all over them.

I next tried scrubbing them with a broom in the boiling water, but it would not work. I meditated awhile, then concluded I would try concentrated lie, providing Dr. Miller did not object. I did not know what effect the lye would have on the tins. He said I might try it. I put the boiler back on the stove to try once more. I did not feel quite so sanguine as I poured in part of a can of concentrated lye.

I did not leave it this time, but anxiously watched to see what effect it would have. It brought it off pretty well, but was not quite strong enough. I put in the rest of the can of lye, and, eureka! the propolis disappeared as if by magic. I stirred the tins with the poker to insure the lye reaching all parts of them; then with the tongs I lifted them into a tub and rinsed them off with cold water, and set them up in the sun to drain, as bright and clean as when they came from the tinner's.

I filled up the boiler with T tins again, and so on, until the strength of the lye was all used up, when I turned it out, filled up the boiler afresh, and began all over again, continuing until they were all done. I used a can of lye to a boiler of water.

Every time I fill up a super with the nice clean T tins I feel more than paid for the work it took to make them so. I am pretty sure that washing-fluid would clean them almost if not quite as well as the concentrated lye, providing it were used strong enough, although I have never tried it. However, I think I should prefer the lye, as it does the work most thoroughly and does not hurt the T tins in the least, that I can see.

If you have a lot of dirty T tins I advise you to clean them in this way, and see if you are not as delighted as I was to see them come out so bright and clean. Be sure to use plenty of water in rinsing them off. EMMA WILSON.

Marengo, Ill., April 5.

THE BEE-MOTH.

ITS HABITS; WHEN AND WHERE COPULATION TAKES PLACE.

Mr. W. B. Ransom, New River, Va., wishes me to answer the following questions through GLEANINGS: If the bee-moth larva—the so-called moth-worm—spins its cocoon inside of the bee-hive, and there issues from the cocoon a female, can she lay eggs without coming out and mating, or must she do as do the queens, come forth and mate? If the latter be true, at what age does she commence to lay?

From the conditional form of the first sentence we might conclude that it is unusual for the moth-larva to spin its cocoon in the hive. On the other hand, this is almost always just where the cocoon is spun and the pupa state assumed. In accidental cases the cocoon might be spun outside. In nature, where man did not interfere, I doubt whether the cocoons would ever be found outside the hive. Indeed, in our northern climes it is imperative, often, to the life of the insect, that the cocoons be formed and the pupa stage passed in the hive. As the late Mr. Moses Quinby showed years ago, the bee-moth, unless protected by the warmth of the colony, often succumbs to our severe winters. I have proved, however, that, in mild winters, they may endure the exposure, even unprotected by the warmth gendered by the bees.

It is probable that the bee-moths always fly forth to mate, as we usually see them during the day concealed somewhere outside of though by the hives. As many are reared on combs in the honey-house, it is not uncommon to find them in this building. They are nocturnal—that is, they fly by night, and, without doubt, usually mate as they take these after-day nuptial flights. It would be unsafe to say that they never mate in the hives. I have seen both moths and butterflies in copula before the wings of the female were dry so she could fly; though usually the same species pair only on the wing. So of this species—the bee-moth—while they usually and perhaps always mate outside, it is possible that copulation may occasionally occur in the hive.

The pairing usually takes place with all moths very soon after the females fly; and, as I have said, often before her wings are so dried that she can fly. I am sure that the bee-moth is no exception. With all insects, the females are able to "bide their time." The queen may await a pleasant day or the coming drone. Moths that usually meet the males as soon as they can fly, in case no males are present, may wait for days. This is true, also, of the bee-moth. She may wait *nolens volens*, for a suitor must come before he can be accepted. Egg-laying commences, often, the very next day after pairing occurs; always very soon.

Agricultural College, Mich. A. J. COOK.

FEEDERS.

THE TWO THAT I PREFER; HOW TO MAKE.

This spring a good many of my colonies are short of stores. I have been experimenting on feeders. Nothing in the price lists suited me. I wanted to feed early inside of the hives, without disturbing any honey-board or quilt, as I do not like to break the sealing before warm weather. Some of my hives have honey-boards with a ¾-inch hole in them. Others have quilts with dry sawdust packing on top. Now, my feeders must be simple, cheap, adapted to feed without removing covers; must kill no bees nor waste feed. I have two that fill the conditions.

and I like them better than any thing I have seen yet. The first is a quart basin of cheap stamped ware with a 1¼-inch hole cut in the bottom, into which a tube is soldered. The top of the tube comes to within ½ inch of being even with the top of the basin. Now open the hole in your honey-board, or remove packing and cut a small hole in the quilt, over which place the basin so that the bees can come up through the tube. Make a tube of coarse paper and push it into the tin tube to aid the bees in climbing up. Fill the basin with syrup as far as the top of the tube; place a float of cloth or any thing to keep the bees from drowning. Now cover the basin over with paper and make it as warm as you please with packing. The bees will come up and take that feed in cool weather, and no openings have been made to allow the much-needed heat of the hive to escape.

The other feeder is made in this way: Take a Mason quart jar. Break the porcelain lining out of the cover; punch a dozen or more small holes in the cover with an awl. Now get a piece of pine board, ⅞ by four inches square; with an extension bit bore a hole through it large enough to receive ¼ inch of the top of the jar. When the cover is on, fill the jar with thin syrup. Screw the perforated cover on tightly; place the block over the hole in the honey-board or quilt; insert the jar and insert in the block; replace packing, etc. The bees will suck the contents out of the jar in one or two days, though of itself it will not run out. I think this is an improved method of using the Mason jar as a feeder. Of course they are cheap, as you spoil only the covers, and every one has empty Mason jars not in use at this season of the year.

Many feeders are recommended that are not fit to use. Wooden butter-dishes leak, and the syrup goes to daub up the packing. They are nice to have in an apiary to save an occasional piece of broken honey, but are of little use as feeders except in feeding candied honey. In this case, make a hole in the dish and use the same as the basin described above. Gray's feeder is not good, as it kills bees to some extent.

H. LATHROP.

Browntown, Wis., April 9.

[Your circular feeder—that is, the first one you describe—is very similar in principle to the very excellent Miller feeder. We have no doubt that it will work very nicely. The second one is nothing more nor less than a slight modification of the old-fashioned pepper-box feeder that we have sold for so many years. We believe that it was E. France who first called attention to this feeder, and it is by him used very extensively, even at the present day.]

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

MRS. HARRISON IN FLORIDA.

Mr. Editor:—It appears strange to one who has always lived at the North, to see plants blooming so differently from what we have been accustomed to. Fruit-trees do not blossom all at once, but continue to bloom for a long time. There will be peaches upon the trees, the size of peas, and plenty of blossoms at the same time. The peen-toos commenced blooming in October. Since the 9th of January I have noted peach-trees blooming, and there are some late ones to bloom yet.

Bees appear to be doing well, and commenced swarming April 1. They are gathering honey from orange bloom, tie-tie, dewberry, spiderwort, and many other flowers unknown to me. What surprises me the most is, that goldenrod is out in full feather. Inclosed is a sprig of it. Bees in this town have only half a flight, as half of it is the bay. There are not many colonies kept here, and all that I have seen are blacks.

I leave here in a day or so, en route for the North by the way of Wewahitchka, to visit the noted orange-groves and large apiaries located there. I long for home, and to see GLEANINGS, which I have missed for some time.

MRS. L. HARRISON.

St. Andrews, Fla., Apr. 11.

SULPHURIC ACID IN WAX-RENDERING; HOW TO PROPORTION THE WATER AND ACID.

Will you please state in GLEANINGS, in plain United States, how many spoonfuls of sulphuric acid should be used to a gallon of water when rendering old combs. Some one has stated it once in milliliters; but Dago is incomprehensible to the average American. Does the use of the acid injure the tin vessels in which the wax is rendered? Must the combs be soaked in the solution some time before boiling, or can we simply pour the acid into the water, throw in the wax, and start up the fire?

Newhall, Cal., March 26. WM. G. HEWES.

[The proportion of acid that we have recommended is 1 lb. of acid to 4 pails of water. This would be reducing the acid about 100 times; 1 lb. of acid means 1 pint; 4 pails would make about 50 quarts; 1 drachm is equivalent to about 1 teaspoonful. Therefore in 1 gallon there would be somewhere about 1000 drachms or 1000 teaspoonfuls. According to our proportion you would want to take about 10 teaspoonfuls of acid to a gallon of water; but you must remember that the acid will attack the spoon unless you dip it in melted wax, and then you will destroy the proportion, because the spoon won't hold as much. To get the matter correctly, measure ten teaspoonfuls of water into a glass tumbler; make a note of the water-line; pour out the water, and then fill up with acid to this water-line, and then this you can put into your gallon of water and have the proportions about correct. It will do no harm to increase the amount of acid, providing your wax is very dirty. We sometimes make it in proportion of from 1 to 50 and 1 to 75. It depends on how much dirt there is to be clarified out. Use a kind of stone crock that is used for cooking; pour in your water and then the acid, and then your refuse pieces of wax. Let it boil over a slow fire for a couple of hours. Move it back on the stove, and keep it just barely hot for about five hours. This will allow all impurities to settle. At the end of this time dip off the wax. Be careful not to stir it up too much.—Yes, the acid before dilution, and to a proportionately less extent after, will injure tin utensils. Wooden or crockery ware should be used. No, the combs do not need to be soaked before heating the acidulated water.]

IN FAVOR OF ABSORBENTS.

Ever since you have been agitating sealed covers I felt prompted to write. Such an article as friend Dadant's ought to carry conviction with it. I have had bees for 7 or 8 years; have wintered 40 stands some of the time, and—well, a little fishy—but I have never lost a single stand by being poorly wintered—have never lost more than four or five from *any cause during* the winter in all this time. Those were queenless, or something of that nature. I live ten miles north of Terre Haute, Ind., and have had some pretty bad winters on bees here too; but I have never used sealed covers. Perhaps one is occasionally sealed; but a very large per cent, at least 90, have had more upward ventilation than I wanted, on account of poorly constructed hives. I *always* use something similar to the Hill device—a piece of burlap spread over the top of the device and the bees, and then fill in—not full if a two-story, but full or nearly full if a 1½-story—with old cloths, cotton or woolen, old carpet, etc. G. F. AYRES.

Atherton, Ind., April 8.

HOW TO CATCH ROBBERS WITH A PORTER BEE-ESCAPE.

During the drouth last fall I had some trouble with robber-bees; and after trying several plans to prevent, I have settled upon one more way of "heading off" the little rogues, and am not quite satisfied that I am right, hence this letter to you. When the robbers begin another run on a hive, I propose to plug the entrance with a Porter bee-escape to point in; remove the top of the hive and quilt, and substitute double wire cloth (wire about one inch apart), and let robbers and all run in, and *keep them there* a few days. What do you think of the scheme? If all right, how long should I keep them cooped up before opening the hive?

MRS. A. R. FORMAN.

Slatonville, Ark., Mar. 15.

[The scheme will be excellent; and although this same thing has been proposed before, we do not remember that any one has tried it. We should be glad to have you and others try it, and then report. It will catch the robbers; and if they can't get out to tell the rest of their comrades, they can't get up a very big robbing.]

KEENEY VS. THE HORIZONTAL WIRING.

In GLEANINGS for 1890, page 371, Mr. E. D. Keeney gives his new way of wiring to which the members of the Root establishment seem to have taken a liking at once. Ernest has proposed wire nails, to be used in place of the staples in Keeney's plan, these nails to be bent to a hook. This was a great improvement. On page 561, friend Hatch makes another important improvement on Keeney's plan, to which Ernest says: "I like your improvement on the Keeney method." On page 557 he says to Keeney: "Your method of wiring is working nicely, and it will probably supersede all others." Now, why is this method abandoned, and the horizontal method by piercing end-bars recommended? Has it proved a failure? With me the former is done more rapidly, and gives, so far, good satisfaction. S.

Klona, Iowa, March 9.

[The Keeney wiring as improved by Hatch did not prove to be a failure. With heavy or medium brood foundation it worked very nicely; but it would not work satisfactorily with light brood. The latter grade as you may know is considerably cheaper than either of the other two, and as this works nicely with the horizontal wiring we gave it the preference. It is less work to wire on the horizontal plan; our girls who wire many hundreds of frames will vouch for this. Again, the Keeney plan did not please all, because the foundation would bulge in places. We recommend the horizontal plan in a word because it is cheaper, not only in time of wiring but in the grade of foundation that can be used with it. It should be remembered that the horizontal wires should not be drawn too tight, otherwise the foundation will bulge.]

THAT "KING BEE" AND THE RAMBLER: AUTOMATIC SWARMERS AND HONEY ADULTERATION.

I am glad the "King-bee of the Home" is safely hived again. I have greatly enjoyed my imaginary travels with him. I expect to draw my head within the shell (clam) if I find he has any idea of coming this way. While we Minnesota bee-keepers are a fine and distinct race for pure product, we don't want any of our patents and methods of operating interviewed by any one not "in it." They could not understand the situation, seen through their Kodak.

If that Rambler should ramble through here I shall turn my 200-lb. "*bunt sheep*" (thoroughbred Oxford) loose on him; and his business set up will beguile leisure hours for GLEANINGS readers for a whole fortnight.

I hope you will try to help us all you can to get an automatic swarmer successfully at work. It will be a wonderful help to single-handed folks who till the soil and cultivate the bee. I must have some by June if I can.

Regarding adulteration, my brother writes me that, when at work in canning-factories in California, all their jellies and all their extracted honey put up where he worked was three-fourths glucose. He said he never was so surprised, for he thought where such a supply of pure product was obtainable such things as adulterants were never used. This is a fact, Mr. Root, and I hope you will use every effort to expose and stop the frauds.

Faribault, Minn., Mar. 24. L. J. PAGE.

[We are not willing to let the matter stand right here. Can not affidavits, or such evidence as will be recognized in courts, be procured to convict these adulterators? Will your brother take oath to such statements? and if so, let's test the law in California. We should be glad to get legal advice from some one of our subscribers in California, of the law profession.]

QUEEN - EXCLUDERS FOR EXTRACTING: HOW THEY WERE PLUGGED UP WITH PROPOLIS.

As I saw a statement from Mr. A. Sion, Kyle, Texas, about propolizing perforated zinc, I will tell you what happened to me last spring. Just in the beginning of basswood time I put on 20 zinc excluders; left them on one week; and when I looked in the upper story there were hardly any bees up there. I thought they might be too weak, so they would not work in the second story; but when I lifted the zinc up I found they were strong, but they would not go through the zinc; and some had almost all the holes filled up with propolis. As soon as I found it would not do I took them all off, and I got about 3150 lbs. of extracted honey from 30 swarms; but my idea is, that, if I had left them on I should not have had 10 lbs. apiece. I think they are great queen, bee, and honey excluders in our Western country. I will try a few this season again. WILLIAM SEEMANN.

Boscobel, Wis., Mar. 27.

[This seems a little remarkable. It makes, however, only the second report of this kind. All others, so far as we remember, declare in favor of the zinc. J. F. McIntyre, of Fillmore, California, uses it largely, and recommends it to his bee-keeping friends. We presume your bees were working on the sealed-cover idea. While the fact that honey began to be stored *after* you removed the excluders is suggestive, it may have been only an accidental coincidence. It is possible that the honey began to flow in about that time. If bees don't have much to do they will plug up with propolis; but if there is a good flow of honey they do not bother much with gumming. It looks a little as if, when they stopped up the zinc holes, little or no honey was coming in then. J. A. Green suggests that such rare instances are due to poor covers. Bees, to store comb honey, must have their receptacles thoroughly well sealed over.]

ORANGE-BLOSSOM HONEY; HOW THE NEW COWAN REVERSIBLE EXTRACTOR COMPARES WITH THE NOVICE.

Your new reversible extractor, the "Cowan Rapid," received a few days ago, works nicely. I have thrown out the last 100 gallons with it, and I must say it is a boss machine. The sample of honey sent was drawn right from the machine. We don't have honey much thicker than that here. A Novice machine would hardly throw it out as clean as the new one will.

THE BEE-ESCAPE, AND HOW IT SAVES LABOR.

Some question the practicability of the bee-escape. I have used them a good deal, and pronounce them a good thing. They have no faults if you understand how to use them. There are several good makes. I like the Porter. With 20 of these, one day last week I took 1000 pounds of honey with 45 minutes' labor—15 in putting the escapes on in the evening, and 30 in taking the honey to the extracting-room the next morning. Can one man remove the same amount of honey by any other method in the same time?

It might not be out of the way to say that those same 20 colonies each gathered from 8 to 10 pounds of honey the day the honey was removed. Would they have done this if the old method of shaking and brushing had been used? I say no.

Our spring flow is at a close, lasting only about 10 days; but it was good while it lasted. My scale hive (on average colony) averaged about 10 lbs. per day. One picked colony gained 17½ lbs. in 9 hours. How's that? Will the man who says "orange" does not yield honey please walk up? A. F. BROWN.

Huntington, Fla., April 12.

ANOTHER METHOD OF PRODUCING WAX SHEETS.

Did you ever try dipping wax for foundation with a glass vessel filled with ice water? My son is a dentist, and to-day he is preparing wax (for taking impressions) into thin sheets about the same as for foundation. Sheets so prepared are very smooth and nice. Any glass vessel six inches in diameter would make a sheet 18 inches long, and as wide as the bottle or vessel is long. The cold water cools, and causes the wax to adhere at once; and from what I have seen this morning I think he could produce one sheet per minute. Perhaps this mode is not new to you. If it is, try it on a small scale, and see if it will not beat wood all together.

Kenna, W. Va., Mar. 22. FRANKLIN GARNS.

[We have never made sheets in the way you describe, but have no doubt it could be done in that way. We simply dip thin boards of the right size into melted wax, and then plunge them into ice or cold water. We can thus make the sheets much faster than one a minute.]

ITALIANS GATHERING TWICE AS MUCH HONEY AS BLACKS.

I notice some of the bee-keepers prefer black bees to the Italians. Well, they can take them for my part. I have both blacks and Italians, and I say positively that my Italians gather twice the honey per colony that my blacks do. I will admit that the cappings on the sections taken from my blacks are a little whiter, when they have any, which is not often the case.

Lexington, Tex., Mar. 23. WM. DOUGLASS.

ANOTHER SCHEME FOR TOP-BARS.

Mr. Calvert:—Below see two ways of avoiding lateral motion in top-bar of frames. First, cut a notch on the under side of the projection of the top-bar $\frac{1}{32}$ or $\frac{1}{16}$ deep, and ⅛ wide; or, second, let the bottom-bar project within $\frac{1}{16}$ of the side of the hive. I find if a hive is cut like No. 2 no tin rest is needed. R. T. W.

Little Britain, Canada.

Fig. 1

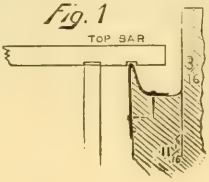
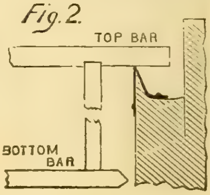


Fig. 2



[We have no doubt that your scheme would work very nicely, Mr. R. T. Whatsyername; but the first thing you would encounter would be the change in the length of the top-bar, and that seems almost out of the question—at least, any radical change on standard sizes. There would be an advantage, however, in having a bee-space around the ends of the top-bars as well as around their sides; but practical bee-keepers seem to prefer the top-bar run clear up to the end of the rabbet.]

AUSTRALIAN BEE-KEEPERS AND WHAT THEY PROPOSE TO DO AT THE WORLD'S FAIR.

The bee-keepers of New South Wales are just arranging for a conference to be held at West Maitland, in this colony, and to forward an exhibit to your Chicago exhibition. Our paternal government is taking the exhibition affairs up in good earnest, and the colonies should be well represented. I hope to go over and see a small portion of America in 1893. We have heard so much about it that one feels quite anxious to see such a wonderful country. C. F. JEANNCRET.

Hunter's Hill, New South Wales, Feb. 16.

[Good for Australia and her bee-keepers! We always thought your people were progressive. We shall be glad to welcome you, and hope you will come so as to attend the North American convention, which will be held at the World's Fair.]

OLD FOUNDATION, AND HOW TO RESTORE IT.

On reading J. A. Green's article on page 239 I was anxious to see whether any process would be mentioned by the editor whereby old hard foundation may be restored; but I see that no remedy was suggested. I have a friend, a bee-keeper, who says that, by dipping in warm water, foundation, no matter how old and hard, can be brought back to its original quality. This is an important matter. I should like to hear from others on this subject.

Browntown, Wis., April 9. H. LATHROP.

THREE LAYING QUEENS IN THE SAME HIVE.

I have a hive with three laying queens in it, and all the bees pass in and out through the same entrance. Let us know how many times you ever had the same thing. I have tried, this spring, Doolittle's process of raising queens, and find it works well. I got some queens, but not a single drone? What will the harvest be?

Providence, R. I. C. H. PEABODY.

[We never had three *laying* queens in a hive at one time, but several times have had two. We do not remember that any one else has reported that many at a time, though we have no doubt that it has happened many times.]

NOTES OF TRAVEL

FROM A. I. ROOT.

SOME KODAK VIEWS FROM REGIONS ALREADY PASSED OVER.

If you will turn to page 172 of our issue for March 1 you will find, where I was describing the mountain stream through the canyon near friend McIntyre's, I used these words: "The stones, big and little, have been tumbled and rolled by the water for so many ages that most of them are beautifully rounded and polished; hence it is all the more risky clambering among them. In places the water comes down so steep that it is really a succession of rapids. The water of these mountain streams is usually beautifully clear, pure, and cool." Well, the rocks and the water, as it rushed and boiled and sparkled through the pebbles little and big, made such a fascinating picture to me that I resolved to try the Kodak on it. Below you see the result.

A VIEW FROM A MOUNTAIN CANYON NEAR FRIEND M'INTYRE'S.

Some of the stones are beautifully white, as you see; others are colored. Some are comparatively soft, while others are like flints, and a few are like jasper and carnelian. Where the water is pure and soft, the rocks are usually clean. That is one reason why I love soft-water springs and rivulets. They leave no deposit of chemicals on the sticks and stones, to make every thing slimy, discolored, and untidy. As there is a great demand for pure water for drinking purposes, these soft-water streams down the mountain are hunted up and piped many miles. The nights in California are cool, especially in the winter time; therefore, although it may be quite warm in the middle of the day, the water coming down these shady canyons is almost always beautiful for slaking thirst; and the abundance of it, so fresh and pure, adds much to the exhilaration. The picture gives you something of an idea of how it boils and sparkles and babbles—a babbling brook truly, but on a rather large scale, as you may find to your sorrow if your foot should happen to slip on one of those polished stones.

I told you that Mrs. Root followed as long as her strength held out; then she rested while friend McIntyre and I went on to explore Devil's Gate. The further we explored into the mountains, however, the more wild and weird it looked, until one began to wonder where he would end if he kept on climbing and exploring. As there was much to see, however, we decided that we could not afford the time to go any further, especially as this kind of exploring must all be done on foot, or, rather, on *hands* and feet. So we made our way back to where Mrs. Root had been left. I had just been thinking that it was almost a dangerous place for any one to be alone, when in this wild mountain canyon; and then my vivid imagination suggested, "What if some of these reckless characters away off here in California should be prowling round and find a *woman* off here alone, without anybody near enough to even hear her call?" We reached the spot where Mrs. Root agreed to wait. Sure enough, she was nowhere to be seen. We called faintly at first, then louder. No answer—not a sound was to be heard except the rushing of the waters over the stones. My heart began to beat violently. The lonely feelings came back that I told you about, and my thoughts ran rapidly from the point where we met in San Francisco up to the present time. Oh! why did I let her go out of my sight and hearing in such a place as this? While the "poetry" part of the situation was fading away at a pretty rapid rate, friend McIntyre shouted still louder, and then we began exploring around further from the point where she had agreed to stay. All at once we caught sight of her behind a rock down near the rushing waters that prevented her from hearing our voice. My anxiety and forebodings disappeared at once, even if my heart did not at once stop its wild beating, and I am afraid I began to scold because she did not keep her promise and stay where we left her until our return. Well, we got it all settled, and proceeded home. I could not leave Devil's Gate, however, without trying the Kodak once more. At the right of the picture you get a glimpse of where the sun has illuminated a corner of one of those great reddish jasperlike rocks. Mrs. Root and friend McIntyre are in the distance, and a small canyon opens up through the mountain above their heads. If a railroad should ever run up these mountains, it will open up one of the finest bits of scenery there is to be found almost anywhere. Why! it really makes me thirsty a I see that gushing stream of living waters as i sweeps by, close to friend McIntyre's feet, as you see in the cut.

SCENE NEAR DEVIL'S GATE, SESPE CANYON, VENTURA CO., CAL.

A GLIMPSE FROM THE INTERIOR COURT IN THE CENTER OF THE CORONADO HOTEL, CORONADO BEACH, SAN DIEGO CO., CAL.

We will now go back again to San Diego. I told you, three years ago, of San Diego's wonderful natural harbor, and of the motor railway that runs away out into the ocean on a thin little streak of sand, finally ending in a sort of island, or peninsula, where is situated the celebrated Coronado Hotel. For a time this was said to be the finest and largest hotel in the world. Since it was built, however, other hotels have eclipsed it. I do not know whether it pays expenses or not—I am afraid it does not; for, to get even a moderate interest on the capital invested, it would require a higher state of prosperity than the city of San Diego seems at present to enjoy. As pictures of this famous hotel have been scattered far and wide, I shall not attempt one here. Inside of the building or buildings (for it is really an aggregation of many buildings) is a court, or garden, of perhaps a quarter of an acre. There is no opening through from the outside into this garden, except through the buildings. By the way, there are stores and offices, halls for public meetings and theatricals, to say nothing of billiard-rooms and the like, all within this one hotel. We entered this inner court by passing through a drug-store. When I visited it three years ago it was the finest thing in the way of a floral garden I ever saw; yes, it indeed eclipsed every thing in the shape of greenhouses and conservatories that I have seen in any of the large cities or expositions. You see, the climate here at San Diego is such that almost every thing will grow in the open air that grows in any part of the world. Exotic flowers, such as I had never seen before, were here, thriving with wonderful luxuriance right in the open air. Humming and other kinds of birds of gaudy plumage also helped to add interest to the scene, while the thunder of the waves just a few feet away furnished music for an accompaniment. One thing that added largely to the beauty of this garden was, that trained gardeners were constantly removing not only every flower, but almost every leaf or twig, as soon as it had passed its prime. A beautiful piece of statuary stood in one corner of the garden, and innumerable fountains cast a silvery spray all round about it. I feared the Kodak could hardly do such an exhibtion justice, but I made the attempt notwithstanding, and you can see the result.

It gives you a little glimpse of a part of the hotel balcony that surrounds the whole inner court. The lower porch is not visible, but you can see the upper ones. The rooms for the guests all look in upon this tropical garden; they also look out upon the other side on the ocean where its restless waves are constantly pounding the white sandy beach as they throw the briny spray and give forth at times their deafening and unceasing roar. Every one who goes to the Pacific coast—at least all who venture near San Diego—should visit Coronado Beach and look over the great hotel. Beautiful grounds and grassy lawns cover several acres of ground around the hotel. Bath-houses, museums, ostrich-gardens, and other attractions, are to be found in the vicinity of this popular resort.

OURSELVES AND OUR NEIGHBORS.

Ye are not your own, for ye are bought with a price.—I. COR. 6:19, 20.

A little bit of a yellow-covered booklet came floating through the mails, all the way from Melbourne, Australia. On the back of it we found written, "F. Chambers, Gladstone Building, Franklin St." The book is by George Müller; and the title of it is, "Scriptural Advice to Christians Concerning their Earthly Occupation." The very minute I read the title it occurred to me that I should be very glad indeed of some advice from Müller himself on this perplexing question; hence I turned with eagerness to the first page, and read the following lines:

> The children of God, who are strangers and pilgrims on earth, have at all times had difficulty in the world, for they are not *at* home, but *from* home; nor should they, until the return of the Lord Jesus, expect it to be otherwise with them. But while this is true, it is also true that the Lord has provided us, in all our difficulties, with something in his own word to meet them. All difficulties may be overcome by acting according to the word of God. At this time I more especially desire to point out the means whereby the children of God, who are engaged in any earthly calling, may be able to overcome the difficulties which arise from competition in business, too great a number of persons being occupied in the same calling, stagnation of trade, and the like.

I read the above again and again. I have read it at the noon service, and I have read it in the prayer-meetings, both young and old; and every time I read it the concluding words seem to me like a glimpse of clear sky through the troubles that gather like clouds in regard to finance, labor, capital, etc. The special point about too many people being occupied in the same calling is one that interested me greatly. While in New Orleans there was much talk about too many people being engaged in the cotton business, and hence the low prices and stagnation. At the horticultural institute, Jackson, Mississippi, the speakers dwelt especially on this one theme; and in the North we have all heard the talk about 75-cent wheat, and the conclusion that many seemed rushing to, that "farming don't pay." What is the trouble? Let me give you a few words more from our good friend Müller. By the way, I shall have to skip a good deal; but whenever I draw the line it seems really too bad to omit what follows:

> Now, suppose the believer is in a calling in which he can abide with God, the next point to be settled is: *Why do I carry on this business, or why am I engaged in this trade or profession ?* In most instances, so far as my experience goes, which I have gathered in my service among the saints during the last forty-five years, I believe the answer would be: "I am engaged in my earthly calling, that I may earn the means of obtaining the necessaries of life for myself and family." Here is the chief error from which almost all the rest of the errors, which are entertained by the children of God, relative to their calling, spring. It is no right and scriptural motive, to be engaged in a trade, business, or profession, *merely* in order to earn the means for the obtaining of the necessaries of life for ourselves and family, *but we should work because it is the Lord's will concerning us.* This is plain from the following passages: 1 Thess. 4:11, 12; 2 Thess. 3:10 12; Eph. 4:28. It is quite true, that, in general, the Lord provides the necessaries of life by means of our ordinary calling; but that *that* is not *the reason* why we should work, is plain enough from the consideration, that, if our possessing the necessaries of life depended upon our ability of working, we could never have *freedom from anxiety;* for we should always have to say to ourselves, And what shall I do when I am too old to work? or when, by reason of sickness, I am unable to earn my bread? But if, on the other hand, we are engaged in our earthly calling because *it is the will of the Lord concerning us that we should work*, and that thus laboring we may provide for our families and also be able to support the weak, the sick, the aged, and the needy, then we have good and scriptural reason to say to ourselves: Should it please the Lord to lay me on a bed of sickness, or keep me otherwise, by reason of infirmity, old age, or want of employment, from earning my bread by means of the labor of my hands, my business, or my profession, he will yet provide for me. Because we who believe are servants of Jesus Christ, who has bought us with his own precious blood, and are not our own, and because this our precious Lord and Master has commanded us to work, therefore we work; and, *in doing so*, our Lord will provide for us; but whether in this way or any other way, he is sure to provide for us; for we labor in obedience to him; and if even a just earthly master gives wages to his servants, the Lord will surely see to it that we have our wages, if in obedience to him we are engaged in our calling, and not for our own sake.

When I first got the book I read the above extracts to Mrs. Root, as we sat together one evening, without telling her who the author was. When I had finished I said, "There, what do you think of that? Who should you judge wrote this little book?" and I held it up. She replied, "Why, I am sure I can not tell; but it evidently comes from somebody who stands on a higher plane of spirituality than the most of us do." Then when I told her that it was George Müller we both had to laugh. In very truth, Müller *does* stand on a higher spiritual plane than the rest of us; and, by the way, it does seem to me as if the great wide world—the business world as well as the Christian world—were passing Müller by, giving him and his work but little thought or attention. I once dreamed that I discovered a machine or principle for navigating the air; and I expected, of course, the whole world would stop its work and look while I demonstrated over their heads and before their eyes my new principle. I was a good deal disappointed because folks did not pay very much attention to me or to my "navigation." Some of them stopped their work and looked a minute or two, and then they went on hoeing corn and driving business as usual. In fact, a great part of them did not look up at all. They evidently felt content to stay on the *ground* and let folks navigate the air who felt that way. So in regard to Müller. He came upon the spiritual and financial world so sudden, that, for a time, it was almost startling. A few people stopped and considered the matter.

Some wondered for a while if we had not all been making a great mistake—a mistake because we lacked in faith. Müller loved humanity; at least, he did *after* the Holy Spirit made its dwellingplace in his heart. Then he began to *work* and *pray*. He believed it was not God's will that the homeless ones of the great city of London should grow up educated to sin and crime. He had faith to believe that God would furnish the means for a reformation. The great busy world looked on and concluded that it must be a string of *coincidences*, or that it was just a "happen-so," and could not last very long. But years go and come, and there are few business enterprises on earth that seem more *firmly* established than Müller's work. Now for a consideration of some of the statements he makes. A man who is industrious and diligent that he may obtain the means for supporting his wife and family, is, according to Müller, making a *mistake*. I do not suppose that he means that the above is not a praiseworthy object, and really above the heads of some of us; that is, we have people all about us who do *not* take care of their wives and children—in fact, some who neglect or refuse to provide even the necessaries of life. If these people can not be moved by any higher motive, I should most strongly urge this; but for all that, there *is* a higher plane to live on, and a higher motive for exertion. This matter of laying up something for a rainy day, or for sickness, or for old age, that is so often talked about, and so often discussed, what is it but selfishness after all? A missionary from China gave us a glimpse of what a nation is without Christianity, by remarking that, if a comrade were drowning, very frequently the natives refuse to go to his rescue; and a poor fellow actually drowned because the missionary could not make some fishermen move quick enough to go to his aid. They refused to stir until he would give them a sum of money something like five dollars. When he told them at once that he would give it, they insisted on having the money *first*. By the time the money was handed over, the poor man was drowned. I saw a newspaper statement in regard to the recent flood in Mississippi, in our own United States of America, where the colored folks refused to stir a peg to the relief of other colored people until they had been *paid for* laboring for the rescue of their own people; and, furthermore, they insisted on having their pay *before* they went to work. I am greatly surprised at this, for I had formed a pretty favorable opinion of our colored population in the South—at least of the intelligent and educated ones. I hope it is a mistake, and not true; or, if true, that there were only a few, comparatively, who took this stand. Had it been their own relatives and children, very likely these people would have stirred themselves at once; but as it was somebody else they didn't care particularly. Now, the man who is simply trying to lay up something for a rainy day, or against old age, sickness, and the like, is a good deal after this fashion; and if he steps no further, or goes no higher in his plan of lifework, he may both *lie* and *steal* in order to get the wherewith for a rainy day or for old age. Years ago, when we had saloons here in Medina, I went to a neighbor and remonstrated because he proposed opening a bar in his hotel. He said that he *must* do something to earn the wherewith to support his family and educate his children; therefore he opened the bar. *Before* the children were educated, however, he filled a drunkard's grave, and they had to educate themselves. Müller says, "If our possessing the necessaries of life depended upon our working, we could never have freedom from anxiety." There we have it. A man who is trusting to his own powers of mind and body—one who is trusting in the probability that he *may* have health, etc., has *great need* to be anxious, for all these things are but luck and chance; but, on the contrary, when he is trusting on the strong arm of the Lord, and has faith in him instead of in poor feeble human brain and muscle, then may he be at peace, for "*the Lord will provide*." Then, again, there is something wonderfully comforting in the little text I have chosen. I got it from Müller's book—"Ye are not your own, for ye are bought with a price." Oh I am so glad that I am *not* my own! It fairly makes my heart thrill to feel that Christ Jesus cared so much for *me* that he really wanted me to such an extent that he of his own free will and choice *bought* me with a price. Therefore I am his. He owns me, and I am not my own. I remember the dreary years of my earlier life when I called myself *my own*. I had become so old that I was no longer under my mother's charge, and my good father had decided to let me plan for myself. For a time I thought it was very nice to be my own boss and master. It was stepping out into pretty broad liberty when I felt myself no longer accountable to any one. I did not think of God—in fact, I thought *I* was *all-sufficient*. How soon I learned my mistake! Have you not learned it too, dear brother and sister? Oh! I do hope you have reached the point where you felt as I expressed it last issue—"*I* am *weak;* but *thou* art *mighty*." Again, the man who is not working or thinking about laying up something for old age or a rainy day, or for the children, has something to spare for *missionary* work. Müller says, in his quaint way, page 14 of the little book:

> I do not find in the whole New Testament one single passage in which, either directly or indirectly, exhortations are given to provide against deadness in business, bad debts, and sickness, by laying up money.

What a thought! An appeal may come for the suffering people in the South, or even from across the ocean, and you may say to yourself, "Well, I should like to give something with the rest of you. But suppose I should get sick, or should have losses in business, then what a sad thing it would be if I had sent the money away that I needed myself!" I wonder if there is a professing Christian whose eye meets this who has been guilty of such reasoning. Müller gives a great list of texts in this direction. Here are a couple of them:

> "There is that scattereth and yet increaseth; and there is that withholdeth more than is meet, but it tendeth to poverty. The liberal soul shall be made fat; and he that watereth shall be watered also himself" (Prov. 11:24, 25). In connection with 1 Cor. 16:2, I would also direct my brethren in the Lord to the promise made in Luke 6:30, "Give, and it shall be given unto you; good measure, pressed down, and shaken together, and running over, shall men give into your bosom. For with the same measure that ye mete withal it shall be measured to you again."

And now, dear friends, I am coming to a thought that has been on my mind for a long time—in fact, something has been said in regard to it in these pages already. It is, the starving brothers and sisters in Russia. Our church is to make a contribution next Sunday. I have been urging a long while; and when they decided to wait until next Sunday, I made the remark that ever so many hundreds and may be thousands might starve before our contributions get there. Of course, it is not as bad as the men who demanded five dollars in advance before they would stop fishing long enough to save a man from drowning; but I do think we should *make haste* to let it be known that our work, and our aspirations and plans here in this world of ours, go a little outside of family relations and family ties. Perhaps we can not, all of us, climb to the spiritual level where Müller stands, and *stay* there. I add the last, because one of my great weaknesses is to slip down so quickly, almost immediately after I have been lifted up. Here are some extracts that I made from two of our agricultural papers in regard to what has been done, and the needs in regard to the work. The first comes from the *Country Gentleman* of March 31:

> An appeal for prompt and liberal assistance is issued by the Russian Famine Relief Committee (John W. Hoyt, Chairman, 732 Fourteenth St., Washington), and deserves immediate attention. Every newspaper is asked to urge upon the attention of its readers the facts
>
> That the famine, so vast and dire, is not alone, but is supplemented by the freezing cold of a terrible winter, and by the distresses which come in the train of attending pestilence which may, if not soon checked, sweep over many other lands as well.
>
> That the famine is there to stay, even until after the coming harvest, unless banished by the benefactions of those in other and more favored lands.
>
> That the Russian government is exerting itself heroically for the rescue of the people, both by a munificence worthy of a great nation and by the sacrifices of those who administer the public affairs.
>
> That the extent of the famine is so great, and the revenues of the government have been so far crippled by repeated and widespread failures of the crops, that there is need of help from other friendly countries—help immediate, liberal, and persistent
>
> That, the rest of Europe having also been impoverished, the bulk of supplies must come from America, so wonderfully blessed with bountiful crops the past season that she can send shipload after shipload of food without perceptible drain upon her inexhaustible stores.

And here is what the *Rural New-Yorker* of April 20 has to say:

> Philadelphia was the first to send a shipload of flour to the relief of the starving Russians, and the steamer Indiana's cargo was received at Libau with public rejoicings and hearty thanks. The Minneapolis millers sent the next cargo through New York, and this is still at sea. The Philadelphians have almost completed another shipload, and the Western millers will send another also in a few weeks. Millers, farmers, and others all over the country are generously joining in the good work, and probably a dozen or more cargoes in all will be donated. Of course, this will be a Godsend to a comparatively few, but would hardly be a mouthful among the millions in distress.

HIGH-PRESSURE GARDENING.

BY A. I. ROOT.

EVERITT'S MAN-WEIGHT CULTIVATOR AND BREED'S WEEDER.

What do you think of Everitt's Man-weight cultivator and seed-drill? Is it not bad for the man's breast? Can you recommend it for rather stiff clay loam? Do you like Breed's weeder?

Alexandria, Va. A. JAMIESON.

[My good friend, the great trouble with both of these implements is, that the average gardener does not very often have the land or the kind of soil suitable for such machines; and another thing, the ground must not be too wet nor too dry. What I mean by "too dry" is, that if the cultivation has been neglected at the right time until the soil becomes baked, neither of these machines will be practicable; at the same time, by the *use* of these machines we ought to be able to *keep* our ground soft and mellow, unless we have too much rain. Underdraining the ground thoroughly is a great help; in fact, it is really a necessity. Ridging the ground up in winter time to let the frost work at it is another great help; and we have been so much annoyed this spring by having our ground too wet to work that I have begun to think seriously of plowing it in the fall when it is in proper trim, then throwing it up in ridges and planting our early stuff in the tops of the ridges, leveling them down slightly with some of these tools. One of the best crops of potatoes that I ever raised was worked entirely with a Breed's weeder. It was never touched with a hoe at all. But this was on our best creek-bottom ground that is slightly loamy. But this same piece of ground this spring has been too wet to work for a whole month. Everitt's cultivator is too poorly made to stand wear and tear; at least, the one he sent us pulled to pieces so much that we have become disgusted with it. I think he ought to furnish us (and, in fact, everybody else who has one of his poorly made machines) a new one free of charge. He evidently, however, does not think so, for I have written him about it, and he simply said they made them better now, without any offer to make good our loss. *Later.*—He has, since the above was in type, offered to send new parts.]

THE TROUBLE WITH RASPBERRIES; ALSO SOMETHING ABOUT SQUASH-BUGS.

A. I. Root complained that raspberries do not thrive as they used to. I wish that he would see whether the trouble is not from fungus or the root-borer, and report in the garden department. The injury is a serious one with us. I should also be pleased if Mr. Root would experiment with a hot-water spray for squash-bugs, and perhaps other insects. It has proved useful in some cases. L. WILLIAMS.

Delavan, Wis., April 7.

[I am inclined to think you are partly right, my friend. Examination shows a deadness of the roots, although I do not see any traces of the borer. Our new plantation, put out last spring, made a very poor growth during the fore part of the season; but in the fall the vines did pretty fairly, and seem to promise now to grow with vigor. In regard to the hot-water spray for squash-bugs, even if it succeeded perfectly it would be too much labor. With us they frequently come in droves within an hour; and in just a few hours the vines are destroyed or very much injured; so you see it would take constant watching. With the wire-screen bug-protectors, however, when they are once covered up, all trouble is at an end for, perhaps, a couple of weeks. I am inclined to think now that plenty of tobacco dust will also do the business; but instead of a little sprinkling, it wants a whole shovelful; and as the shovelful is worth all it costs, for manure, in localities where this dust can be had at a low price it will probably be the cheapest remedy for our insect-enemies on vines. The strong odor of the tobacco remains for a long while, even after the vines are so large as to crowd against the wire-cloth covers.]

THE AMERICAN PEARL ONION.

You say the Pearl onion has wintered again with you. It did not with me. I got a quart of you and planted them Sept. 15th, so that they made a good growth; but there are not more than a dozen left, and they were mulched with hay. Potato onions, planted the same day, about half wintered; planted Oct. 15th, one month later, all wintered. I shall try again, but plant so that they won't grow any in the fall. Irish potatoes winter all right in the ground here, not over two or three inches deep, and we had hard freezes for this country—4° above zero. You are right about the Hall treatment. It is the worst fraud of the age—not but that it is good, but it claims too much. Bees wintered all right, but I hear of some starving on account of no fall honey.

Grand View, Tenn., April 18. A. F. AMES.

[Friend A., I wish you had tried a part of your American Pearl onions without any mulching. They are very apt to rot, and I have sometimes thought the mulching helped to keep the ground damp, and thus make them rot. I am surprised to know that the potato onions, planted a month later, all wintered. This indicates that there is something about onions that we do not know all about.]

TWO MORE BAD REPORTS FROM THE AMERICAN PEARL ONION.

Extra Early Pearl onion will not live over the winter here. I got a quart of you last fall. They are all dead, rotten. M. ISBELL.

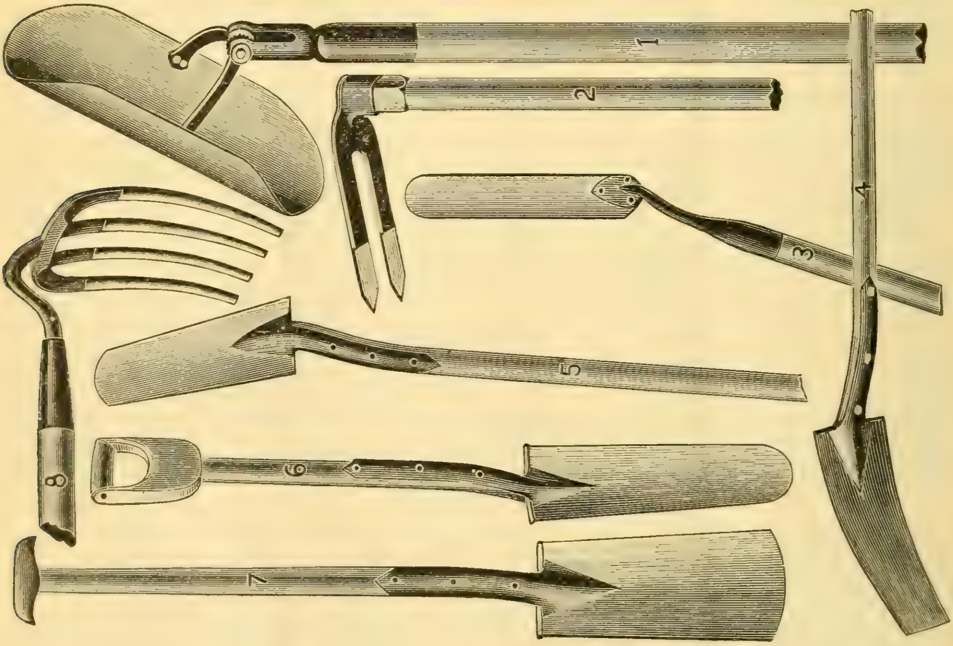
Norwich, N. Y., April 4.

There seems to be something wrong with the American Pearl onions that I got from you last fall. A third of them have from two to five in a bunch, like the multiplier onions. A half of them are running to seed. Is this the habit of this onion? A. T. MCILWAIN.

Abbeville, S. C., Apr. 4.

SOME TOOLS FOR THE MARKET-GARDENER.

The cut below is taken from our new book on tile drainage. It is a list of the tools selected by Prof. Chamberlain. As they are, however, very useful for many purposes besides ditching, I have thought best to speak of them a little here.



No. 1 is for grading and cleaning out the trench just before the tiles are laid. The tool is an exceedingly handy one; but I should prefer it with a permanent solid joint instead of the adjustable one as shown. In fact, I have taken quite a dislike to adjustable tools, or tools made for a great variety of purposes. One reason why I dislike them is, that the man who uses them will be fussing with the tool a good many times when I would rather he would be doing his work. If you are doing very much ditching it will pay to have two or more sizes of these bottoming-scoops to suit the size of tile.

No. 2 is what we call a "Dutch hoe." One of our men who recently came from Germany brought it along one day to pull the dirt into the ditches. The rest laughed at him; but pretty soon the hoe became a favorite tool with many of the men. It is good for grubbing and digging around trees, for digging roots, and, in some kinds of ground, it will work it up about as well as any thing.

No. 3 is for much the same purpose as No. 1; and it is exceedingly handy for many purposes.

No. 4 is a light, thin, narrow spade; but for myself I should prefer No. 5. Now we come to the regular ditching-spades.

No. 6 is for cutting the last course of the ditch. If the ditch is started with an even grade on top, and both Nos. 6 and 7 are pushed *clear down*, to a uniform depth, very little work will be required in fitting the bottom for the tile; for you notice the round end of No. 6 leaves it just about as you want it;* and, by the way, the bottom of the ditch should be very little wider than the bottom of the spade No. 6. It is on this point that I have a good deal of quarreling, especially with new men. They will dig the ditch twice the width of the spade, and have the bottom in such awkward shape that the tiles can not be laid true and regular. The excuse is, that they can not work in so narrow a ditch. Where a man won't do as you wish to have him do, or as he sees others do, I would turn him off and hire somebody who would. May be you think this does not sound like some of my teachings; but I mean, of course, that you are to use mild measures *first.* If that plan does not answer, then state the case kindly but firmly. And, by the way, No. 6 is a most valuable tool to have in the market-garden or on the farm. We have three of them—two with long handles and one with a short handle; and these ditching-spades are almost always wanted for a variety of purposes. If you want to take up trees they are far ahead of a common spade; for where the tool is a good one it can be used almost like a crowbar. For digging horseradish, or digging rhubarb roots for sale, taking up Egyptian onions, parsnips, carrots, vegetable oysters, and the like, they are the best thing in the world. The point is so narrow you can dig a dock out of your strawberry-bed and not injure very much besides the dock. If you have not had one on your premises, just let the boys get hold of one and see how they will learn to "go for" it.

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*The following is from page 88 of our new book, Tile Drainage:

If the entire ditch is to be 30 inches, I usually try to make fully 7 or 8 with the plow, and 13 or 14 with the first spade, and that leaves only 8 or 9 inches for the second, or bottoming-spade. The subsoil at the bottom is far more compact and hard, and it is better not to have too deep a course to dig. Great care should be taken to keep the grade of this course exactly right, so that, when you draw the double-ended crumb-cleaner No.1, and groove-cutter through the few loose crumbs of clay that are always left by the spade of even an expert, you will leave a true groove ready for the tiles.

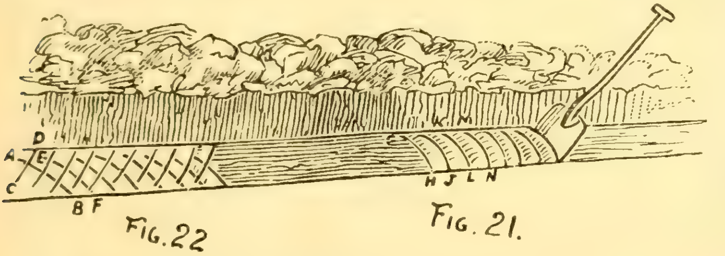


FIG. 22 FIG. 21.

HOW TO DIG, EVEN IN HARD CLAY, AND DO IT EASILY.

No. 7 is a tool that I never owned until I saw it recommended in the tile-book. When you are ditching through rich ground, take off the rich black surface soil with a common spade. Clean out the ditch down to the yellow dirt. Throw this good dirt to one side, and the rest of the soil (the poor clay) on the other side. Now take No. 7 and push it down full depth. Unless you have learned how, you will say you can't do it—the ground is too hard. I think, my friend, I can push both the spades, Nos. 6 and 7, down full depth on the hardest ground you have. If the ground is full of stones I can still do it and get out the stones quicker than you can do it with a pick or grubbing-hoe, and I will have a straight narrow ditch all ready for tiles quicker than a big stout man who works in the old-fashioned way. The secret of being able to do this is shown by the cut, and I copy here from the tile-book itself:

DON'T BURY THE SPADE.

The first point in rapid, easy digging, is to keep one side-edge of the spade *out of the earth, in sight,* each spadeful. Fig. 21 shows how a non-expert will bury both edges of the spade at *gh, ij, kl, mn,* and have harder work thereby, both in sinking the spade and in breaking off the slice of earth. Fig. 22 shows how an expert will sink his spade; *ab, cd, ef,* being the curves cut by the spade, and the edge *a* being "out" the first cut, and the edge *c* being out the second cut, and so on. Thus held, the spade sinks more easily, and the *one* edge breaks off true and easily.

SINKING THE SPADE.

This is done by a succession of quick "shoves" or thrusts with the foot, throwing one's whole weight upon the spade with a quick impulse, and working the handle slightly back and forth in sympathy with the efforts of the foot. It will take from two or three to six or eight "shoves" to send a sixteen-inch spade "home," the number varying with the hardness or stoniness of the clay and the skill and muscle of the digger. The best way to get this motion is to watch a real expert and get him to teach you. I almost never use a pick or mattock. A good ditching-spade well handled will dig almost anything but the stoniest clayey gravel faster alone than with the help (?) of the pick, by working *around* the stones.

No. 8 is to be used much like No. 2. The tool we use, however, has flat tines instead of round ones, as shown in the cut. The tines are flat on the inside and rounded on the outside. It is called the filling-hook; but it is useful in a great variety of places on the farm or in the garden. It will pull straw out of a stack, pull manure on to a stoneboat, level down hummocks in the field, dig potatoes on an emergency, and do a variety of such work. With a set of tools like these, many kinds of work as well as underdraining may be done; and a man who is expert in the use of tools will oftentimes do *double* the work by having *just the tool* he requires.

We presume that you can find these tools at your nearest hardware store; and, in fact, it is usually the best way to get them, on account of the expense of shipping such bulky articles. If, however, you prefer to get them of us, we can furnish them as follows: No. 1, $1.25; Nos. 2, 3, 4, 5, 6, 75 cts. each; and No. 8, 50 cts. No. 7, $1.25. A single tool is rather expensive to send by express; and it is also rather expensive and inconvenient to send by freight unless it goes along with other goods. If, however, you should want several tools they can be made into a bundle so as to go by freight at moderate expense. In case you do not buy of us, the figures above may indicate to you about what prices you *ought* to pay.

TRANSPLANTING FROM GREENHOUSES OR COLD-FRAMES INTO THE FIELD.

There is one thing in friend Day's tomato-book that pleased me greatly. It was, a recognition of the fact that there is a tremendous gain in moving plants to the field with dirt adhering to their roots; and he even moves his tomato-plants in this way, for planting out acre after acre. I have for years been satisfied of the importance of this, but yet the whole great wide world, almost, seems stupid in regard to the matter. They say it is too much fuss, and takes up too much time, and so they let the dirt rattle off, sometimes taking the fine roots with it, and lose half of their crop, then quit the business, etc. To-day we are moving celery-plants from the greenhouse to the field. After the plants are thoroughly wetted down in the bed, a scoop-shovel is pushed under a sod of plants. These scoop-shovels are carried to the field in a wheelbarrow. Each man has one; and as he sets the plants he picks them from the shovel with a ball of rich earth adhering to the root, and places it in the furrow. Of course, the plants will live—every one of them—and grow outdoors just as they grew in the greenhouse. If you haven't scoop-shovels enough, gather up your barn-shovels, potato-forks, etc., and use those.

TOBACCO COLUMN.

Before giving the following brief extract from a letter just received, we wish to say that GLEANINGS does not propose to open its columns to discuss politics. I am sure it would not be wise nor well. But where two political parties are alluded to in the following, we wish it understood that their names are mentioned solely because of their bearing on the question of the use of tobacco. If our good brother's statements are not true, we may give place to something very brief, showing wherein they are not true. You will notice that he and I evidently do not quite agree in politics. I am glad, however, that we agree perfectly on the tobacco question. Here is the extract:

I do not know how much you have associated with Prohibitionists—whether you ever attended any of their conventions, or have read *their* side of the question or not; but I will tell you just what kind of a "crowd" they have. I never saw a delegate smoking a cigar. Neither did I ever hear a profane word used by one of the delegates. Neither did I ever see a stub of a cigar, nor a chew of tobacco, nor a particle of tobacco-spit on the floor when they had finished, and I should have seen it if there had been any. I have seen in our own county courthouse, before the Republican County Convention adjourned, a new carpet completely saturated with tobacco-juice, with quids of tobacco and stubs of cigars covering it, while the room was blue with cigar-smoke. VOLNEY WHITE.
Findley's Lake, N. Y., April 11.

Please send to George Bates a smoker. His address is Davis City, Iowa. He has quit using tobacco, and I think he is safe. If he ever uses it again I will pay for the smoker. He is raising a family of boys, and his influence on them will be better. A. S. ROSS.
Decatur, Ia., Feb. 25.

Mr. Andrew Hudspeth has, through reading GLEANINGS, discarded the use of tobacco, and says he has quit for good. If you feel so inclined you can send him a smoker; if he ever begins the vile habit again I will pay you for the smoker if sent. M. F. RAGSDALE.
Collinsville, Texas.

I think I may lay claim to one of your smokers that you offer to all readers of GLEANINGS who quit the tobacco habit. This I have resolved to do. I have not used any for two and a half months, and do not intend to again. If I do, I will pay for the smoker. I have been a user for about 22 years. J. M. CAMPBELL.
Glidden, Ia., Feb. 16.

Mr. Lafayette DeWitt, of Sunny Side, Md., has stopped the use of tobacco, and he agrees to pay you 75 cts. for it if you will send him a smoker and if he uses tobacco again. Also Mr. F. B. DeWitt has stopped the use of tobacco, and he agrees to pay you for the smoker if he ever uses tobacco again. His address is Sunny Side, Md. M. H. DEWITT.
Sunny Side, Md., Jan. 4.

According to the terms of the Tobacco Column I believe that I am entitled to a smoker. I have been using tobacco for upward of thirty years, and through the influence of some friends and GLEANINGS I have given up the filthy habit. So if you will send me a smoker I will agree to pay for the same, if I ever use the weed again in any form. FREDERICK MULSON.
Baldwin, Kan., Feb. 10.

GLEANINGS IN BEE CULTURE
A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS
ILLUSTRATED SEMI-MONTHLY
36 PAGES 7×10
$1.00 PER YEAR

If ye then, being evil, know how to give good gifts unto your children, how much more shall your heavenly Father give the Holy Spirit to them that ask him?—LUKE 11:13.

ALL photographs designed for half-tone reproduction should be made with a *light* background; and especially is this true for portrait work. Half-tone work, while so beautiful, and admired by many, has a tendency to obliterate lines, and therefore the contrast between objects should be strong.

A GOOD many are now receiving consignments of hives in the flat. After they are unpacked there is a liability that some of the boards will warp a little. Do not try to spring them into shape by nailing the hives or by putting cleats on the covers. First wet the concave side of the boards and lay them on the floor, wet side down. In a few hours they will be straight, and then they can be nailed together.

WE desire to call special attention to Prof. Cook's able article on page 322 of the present issue. It is one that should be copied widely; and bee-keepers should take pains to see that their fruit neighbors are properly informed; for we feel very sure that no fruit-man wants to do any thing that will work damage to his bee-keeping neighbor. All he needs is the knowledge of *when* and *how* to spray, in order to kill codling-moths and yet not destroy bees.

THE Leahy Manufacturing Co., of Higginsville, Mo., seems to be booming things. GLEANINGS wishes them success, even if they enter into competition in the supply business. We have a good big country, and there is plenty of room for all; and although we employ every legitimate means to stimulate trade, we do not want the "whole loaf," and therefore welcome new business enterprises in the bee-keepers' supply line.

ALMOST every mail brings a letter offering either to sell bees to us outright or to give them in exchange for goods. We are obliged to say to one and all that it is not profitable for us to buy bees from a distance, as the express would cost more than they are worth. Another thing, the bees are not in such frames, nor such stock, as a rule, as we care to send out again to our customers. If you wish to reduce your stock of bees, the better way is to offer them for sale in your local paper first; i. e., sell 'em around home. If that does not dispose of them, try the bee-journals.

As we have said several times before, we repeat again: If you differ from the position taken by the editor—that is, if you are sure he is wrong, and that, if such position is not corrected, it will work damage to the industry, be free to correct him; but for goodness' sake, do it in a gentlemanly and courteous manner. We have not time to bother with unkind flings. Time is too precious to waste in following up and answering such attacks; but we do desire to be on the right side; but if on the wrong side we are glad to be set right. Alack the day when we shall get into ruts and stick to wrong notions! Gleanings desires to be fair to all parties, and to all sides of a question; but it has no space for sarcastic and cutting witticisms.

Some years ago Mr. Langstroth wrote an article on nomenclature for bee-keepers. At the time, he suggested the coining of new words, the use of which was almost a necessity. He proposed, for instance, the term "unqueening" for the circumlocution of removing or in any way depriving a colony of their royal mistress. We believe that he also suggested the term "springing" for the long roundabout way of saying "bringing the bees through the spring months." It is a well-known fact, that it is not so difficult to *winter* bees as it is to *spring* them; and if it is proper to say "wintering," why not say "springing"? We simply mention these two words as an illustration, because we propose to allow — yes, recommend — correspondents to use such short and expressive terms, the meaning of which is perfectly evident to every bee-keeper.

One of the commission honey merchants says that they have much complaint of comb honey candying. This can be remedied to a very great extent by keeping the honey in a warm dry room; but, in spite of all precautions, old comb honey is liable to candy on our hands: and when once candied there is no practical way of reducing the honey to a liquid form again so as to be suitable for the market, or to bring any thing like what the honey is worth. And right here is one great advantage in extracted honey. It can always be liquefied, and, with care, be equal in flavor to what it was before. But, oh dear! extracted honey can be adulterated; and for this reason bee-keepers should take additional pains to fight to the bitter end the disreputable mixing business. Be sure to urge your representative to vote for the Paddock pure-food bill now before Congress; and after you have done that, don't let the adulteration go on if you can help it, in your neighboring city or neighboring town. There is plenty of law in nearly every State to make the scamps squirm; and all we need is evidence.

Do not put poor dark honey—that is, the unpalatable kind—upon your local markets, nor upon any markets, in fact, that are designed to supply direct consumption. It is putting this dark honey upon the public that ruins, in a great many cases, the demand for honey; and, as C. W. Dayton well says in the *Review*, it fans the fire that keeps up the newspaper "canards" in regard to adulterated honey. All such unpalatable honeys should either be fed back to the bees in the spring (in most cases it will do no harm, even if fed for winter use), or should be sold to bakers. If nothing but the well-flavored nice honeys are sold for direct consumption, it will tend greatly to increase the amount sold, and, as a consequence, stiffen prices. We would say, for the benefit of the York State bee-keepers, that these remarks do not apply to the dark rich buckwheat honey that is preferred by so many New Yorkers. We have reference only to the honey that tastes bad —"stuff" that bee-keepers would not eat themselves—no, couldn't even be hired to. To put it a little stronger, it is a downright shame to put such "stuff" on the market and call it honey. The sooner bee-keepers will give up the practice, the better it will be for the pursuit in general.

SEALED COVERS VERSUS POROUS ABSORBENTS FOR WINTERING.

Elsewhere we publish several communications in favor of upward ventilation and porous covering as against the sealed-cover idea. As nearly as we can discover, both from the letters published and those unpublished, the writers have not tried both the sealed cover and the absorbing cushions side by side for a series of three or four years. All through the *winter* we could discover no practical difference in our apiary; but this *spring* there is a slight difference in favor of the sealed-cover colonies. Those under sheets of glass seem to be stronger and more lively than those under the absorbing cushions, and they are the first to fly out. At present, however, we are seeking for more light, and at present are not prepared to advocate either method as being the best. It may take three or four years of careful experimenting on the part of a good many to decide the question. Francis Danzenbaker, of Washington, D. C., in another column, the inventor of the Dual hive, and the one who suggested to us the adopting of the dovetailed corner for the Dovetailed hive, you will notice says he has tried the sealed covers for twenty years, and that he has also tried the porous covering, with disastrous results. Now, who is there, besides the Dadants, who have tried the sealed covers and porous covering side by side, and found the latter as good as the former?

MORE ABOUT IMBEDDING WIRES INTO FOUNDATION BY MEANS OF ELECTRICITY.

Some two months ago a correspondent of the *American Bee Journal* stated that he had succeeded in imbedding wires into foundation by means of electricity from a battery. This set us to thinking and experimenting, although we had entertained the same ideas some eight or ten years previously; but on account of the intersecting wires by the old way of wiring, the plan was not feasible. But since we are beginning to use the horizontal plan, no wires intersecting, so that a current can be run from one end of the wire to the other, the matter has assumed a new aspect. In our last issue we stated the progress of our experiments. Since that time we have been imbedding the wires to a lot of frames by electricity. The form of battery that we now employ is three cells of bichromate of potash, each of a gallon capacity, with the carbons in the large cell, and the zinc in the usual porous cup. Since Mr. Golden's article appeared in type, as given in another column, we began experimenting anew; and the result is, that we find we can imbed the foundation on the wires perfectly. After the job is done, the wire lies nicely imbedded in the center of the wax; and, more than all, it is covered with a very thin transparent coating of wax. Sometimes bees are inclined to gnaw around the wires; but we imagine that, if the wires were covered with a film of wax, the bees would be less inclined to do so. However, experiment will decide this point. At present it looks as if imbedding by means of electricity might not be so very expensive after all, and especially so if we consider the nicety of the work. We imbedded this morning the wires of about 50 frames into foundation by electricity, and the work is beautiful. By timing ourselves we found that we could put foundation on to wires at the rate of three frames per minute; so that we think the imbedding could easily be done at the rate of 150 frames per hour. In our next we will try to give you a picture of the apparatus, and how to make it.

We ought to say right here that it probably would not pay the small bee-keeper to imbed his wires by electricity; but it looks now as if it would be quite a saving in time for the large bee-keepers and all supply-dealers.

PRODUCER AND CONSUMER—MAKING A SHORT CUT FROM ONE TO THE OTHER.

While we sat at the foot of Wilson's Peak drinking our lemonade, friend Stevenson suggested that evaporated fruits were, in many parts of California, a drug. He said he had some beautiful apricots of his own growing and evaporating that he would be glad to sell at 7 cts. per lb. I told him to send me a barrel. They reached us safely at a cost of 2 cts. per lb. for freight. He paid the freight in advance, so as to be sure there would be no overcharges. Well, they proved to be about the finest fruit that our Medina people had ever got hold of. The boys put them on the wagon, and they sold nearly half the barrel the first trip they made through the town. We retailed them at 12 cts. per lb., and this is about what they are worth at wholesale in Cleveland. Now, the point is, by this operation we made a short cut, like cancellation in arithmetic, skipping the middlemen, as has been talked of. Of course, you know I do not mean to intimate that "middlemen" are not good members of society; but they are not *always* needed. When we can make a short cut crosslots, to the benefit of both parties, by all means let us do so. The question then is, How shall we find out who has nice stuff for sale? and who else it is that wants it. Why, I think our home journals should be the medium of this sort of exchanges—a brief notice in the "Wants" and "For Sale" column, for instance. The next point is, that both buyer and seller should be good square men. I do not know whether friend Stevenson has any more left or not. If he has not, I think very likely his neighbors have. His address is, Wm. Stevenson, 80 Orange Grove Avenue, Pasedena, Cal. A. I. R.

Down Go the Prices!
Must Be Sold!

100,000 No. 1 One-Piece Sections at $3.00 per M.
In 5000 Lots, - - - - - $2.80 per M.

Fifty Colonies of Italian Bees; 1 Colony, $6.00; 5 Colonies, $5.00 each. Tested Italian Queens in May, $1.50 each. Untested, $1.00 each. Hybrids, 75c each. Comb Foundation and a full line of Apiarian Supplies. Twenty-page price list free.

J. M. KINZIE,
9-12db **Rochester, Oakland Co., Mich.**
☞In responding to this advertisement mention GLEANINGS.

PUNIC BEES UNTESTED QUEENS from the original and only imported stocks in the country; $2.00 each. Pratt's swarmer, by mail, 60c; 2 for $1.00. **E. L. PRATT,**
9-12db **Beverly, Mass.**
Please mention this paper.

BEES FOR SALE.
25 Colonies Italians, 100 Colonies Hybrids and Blacks.

All on Simplicity frames. State what you want and write for prices to
GEO. E. HILTON, Fremont, Mich.
Please mention this paper.

1882 Golden Italian and White band Albino bees at very low rates. Do not fail to 1892 send for my prices before purchasing. Also Eggs for hatching from my choice strain of Silver-laced Wyandottes that gave such good satisfaction the past season; $1.00 per setting of 13; 2 settings, $1.50.
Address W. J. HILLMAN, Green River, Vt.

J. W. K. SHAW & CO.,

TESTED QUEENS from our best Imported MILAMO Strain. Ready by Return Mail, $1.00 Each. Untested, $9.00 per Doz.

Loreauville, Iberia Parish, La.
☞In responding to this advertisement mention GLEANINGS.

Ladies' Home Journal
Of Philadelphia.

New or renewal subscribers to this best of all, only 75 cts. full year. Reference as to our reliability, Editor of GLEANINGS. Address
AM. CLUB LIST, Shamrock, N. Y.
☞In responding to this advertisement mention GLEANINGS.

Five-Banded Golden Italians.

One untested, 3 or 5 banded, $1.00; six for $5.00; one tested 3-banded, $1.25; 5-banded, $1.50. A few hybrids, 35c each. Two-frame nucleus and queen, $2.50. Full colony, $5.00. Supplies cheap. My Queens are yellow to the tip, and if not found as represented your money will be returned. Send for catalogue. **CHARLES H. THIES,**
9tfdb **Steeleville, Illinois.**
☞In responding to this advertisement mention GLEANINGS.

BEE-HIVES AND SUPPLIES.
Send for catalogue free. Address **SAMUEL JONES,** Highland Park College, Des Moines, Iowa. 9-10d

$1.00. READY TO MAIL. $1.00.
My Golden Italians are "Hustlers." Untested, six for $4.50; dozen, $8.00. Tested, $1.50; three for $4.00. Select for breeders, $2.00; very choice, $3.00. Safe arrival and satisfaction guaranteed. Make P. O. payable at Daytona, Fla.
JOHN B. CASE, Port Orange, Vol. Co., Fla.
☞In responding to this advertisement mention GLEANINGS.

FOR SALE—25 colonies good hybrid bees for $75, in ten-frame Langstroth hives. Must sell on account of health.
JOHN CROMBIE, Columbus, Wis.

Climax BERRY CRATES and BASKETS. Indorsed by all leading berry growers as The BEST. Also Gift Packages, Grape, Peach and other Baskets. Prices low. Illus. Catalogue Free.
DISBROW MFG. CO., ROCHESTER, N.Y.
☞In responding to this advertisement mention GLEANINGS.

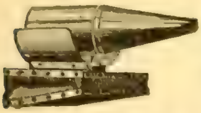
WANTED—LADY OR GENT IN EACH county to distribute and collect for Brabant's ladies' toilet cases; 238 articles, worth $1; will send sample and full particulars by mail for 35c in stamps; returnable if not satisfactory; territory free; $3 to $5 per day easily made. Address J. C. FRISBEE, general agent, 172 Maple St., Denver, Col. Reference, A. I. Root, Medina, O.
☞In responding to this advertisement mention GLEANINGS.

TAKE NOTICE.

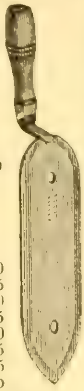
If you are looking for the bees that give the best profits, and most gentle in handling, try the Albinos. I also have the Golden Italian, and can furnish either variety. But if you ask for my preference I say Albino, and in my circular you can see what others say of them. Send for circular and see how cheap I sell them.

I also manufacture and deal in Hives, Sections, Foundation, Extractors, and other Apiarian Supplies. **S. VALENTINE,**
Hagerstown, Md.
☞In responding to this advertisement mention GLEANINGS.

✣BEST ON EARTH✣



ELEVEN YEARS WITHOUT A PARALLEL, AND THE STANDARD IN EVERY CIVILIZED COUNTRY.



Bingham & Hetherington

Patent Uncapping-Knife,

Standard Size.

Bingham's Patent Smokers,

Six Sizes and Prices.

Doctor Smoker,	3½	in.,	postpaid	...$2.00
Conqueror "	3	"	"	.. 1.75
Large "	2½	"	"	... 1.50
Extra (wide shield)	2	"	"	... 1.25
Plain (narrow ")	2	"	"	... 1 00
Little Wonder,	1¾	"	"	.. 65
Uncapping Knife.....				..1 15

Sent promptly on receipt of price. To sell again, send for dozen and half-dozen rates.

Milledgeville, Ill , March 8, 1890.

SIRS:—Smokers received to-day, and count correctly. Am ready for orders. If others feel as I do your trade will boom. Truly, F. A. SNELL.

Vermillion, S. Dak., Feb. 17, 1890.

SIRS:—I consider your smokers the best made for any purpose. I have had 15 years' experience with 300 or 400 swarms of bees, and know whereof I speak. Very truly, R. A. MORGAN.

Sarahsville, Ohio, March 12, 1890.

SIRS:—The smoker I have has done good service since 1883. Yours truly, DANIEL BROTHERS.

Send for descriptive circular and testimonials to

7tfdb **BINGHAM & HETHERINGTON, Abronia, Mich.**

☞In responding to this advertisement mention GLEANINGS

1892 ROOT'S Dovetailed Hive 1892 at his prices. Circular free.

Golden Italian queens, $1.00 each, or 6 for $5.00.

1tfd GEO. W. COOK, Spring Hill, Kan.

Please mention this paper.

SECTIONS.

Snow-white Sections,
Cream Sections,
No. 2 Sections.
Finest goods made.
We have a large stock on hand, and can fill small and large orders promptly.

G. B. LEWIS CO.,
Watertown, Wis.

Please mention this paper.

ITALIAN QUEENS FREE

With supplies. Root's Dovetailed hives and all other supplies cheap. Write for particulars and save money. A. F. MCADAMS, Columbus Grove, O.

Please mention this paper.

For Sale. CALIFORNIA! For Sale.

A ranch of 280 acres. Government land adjacent. Dwelling, bee-house, honey-house, barn, and all needed out-houses. Cattle and horses, with wagons and farming implements if desired. A bargain for a bee-man who has not used his homestead and pre-emption rights. Address **C. B. A.,**

8-9d **Lonoak, Monterey Co., Cal.**

Please mention this paper.

ITALIAN QUEENS.

Untested, 85 cents. Tested, $1.25. Special terms for large orders.

H. FITZ HART,

6tfdb **Avery, Iberia Parish, La.**

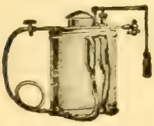
☞Please mention GLEANINGS.

DOVETAILED HIVES, SIMPLICITY HIVES,

SECTIONS, EXTRACTORS, ETC.
A FULL LINE OF
BEE-KEEPERS' SUPPLIES.
60-PAGE CATALOGUE. 1tfdb

J. M. JENKINS, WETUMPKA, ALABAMA.

☞In responding to this advertisement mention GLEANINGS.



SPRAY YOUR FRUIT TREES AND VINES

Wormy Fruit and Leaf Blight of Apples, Pears, Cherries, Grape and Potato Rot, Plum Curculia prevented by using **EXCELSIOR SPRAYING OUTFITS.**

PERFECT FRUIT ALWAYS SELLS AT GOOD PRICES. Catalogue showing all injurious insects to Fruits mailed free. **Large stock of Fruit Trees, Vines, and Berry Plants at Bottom Prices.** Address **WM. STAHL, Quincy, Ills.**

24-10db

☞In responding to this advertisement mention GLEANINGS.

ROOT'S GOODS FOR THE EAST.

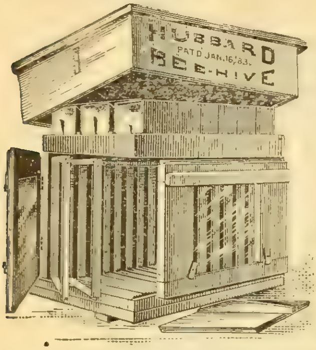
Bee-Keepers of the East should

Bear In Mind that we have established at Syracuse an **Eastern Branch** where our Bee-keepers' Supplies are kept for sale, and prompt shipment. You can save time and freight by ordering from our Eastern Branch. We have engaged Mr. F. A. Salisbury to take charge of this business, and he will treat you well. He will be pleased to send you a list of goods kept in stock.

Address all orders,

EASTERN BRANCH, F. A. SALISBURY, Agent, Syracuse, N. Y.

HUBBARD BEE HIVE AND SECTION PRESS.

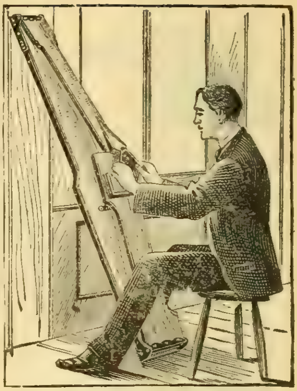


If you want to handle bees **easy** by sitting down to it, here is the hive. Frames fixed and variable distance combined. No wrenching or prying or scraping of combs together. Many thousands in use, giving excellent satisfaction.

Live Agents make Splendid Profits.

Large Circular of 20 pages free.

This **SECTION PRESS** (Pat'd is sold at **$2.50** by the leading supply dealers Ask them for it or send to me. A boy can put together 800 to 1000 sections an hour and have them **true.** Bend section around, put in press, give a little push —'tis done Will last a life-time and is bound to please you



Send for my Circular about Hive, Press, Foundation Fastener, Sections, Foundation, Italian Queens, Extractors, Veils, Honey Crates and Cases, &c. &c. It will interest you. Or send **15 cents** for Practical Book for Beginners—**"First Principles in Bee Culture."** 11th thousand just issued

G. K. HUBBARD, 277 Harrison St., Fort Wayne, Ind.

3-10db ☞In responding to this advertisement mention GLEANINGS.

SOMETHING NEW!

The Best Made, Handiest, and Cheapest **SECTION SUPER** In the Country.

ALSO THE BEST DOVETAILED HIVES, SECTION-BOXES, COMB FOUNDATION, ETC.

—SEND TO THE—

Largest Supply Factory in Massachusetts, for Free Price List that will interest all Bee-Keepers.

Address DUDLEY BOX CO., or F. M. TAINTOR, Manager, Greenfield, Mass.

☞In responding to this advertisement mention GLEANINGS.

A POULTRY BOOK Called "The Chicken Business, and How to Make it Pay." Tells all about it. Finely illustrated, practical, and original. Price 50 cents, postpaid. An illustrated circular free, giving particulars about the book, and prices of pure-bred fowls and eggs for sale by the author. 4tfdb

H. B. GEER, Nashville, Tenn.

☞In responding to this advertisement mention GLEANINGS.

BEES **350 COLONIES OF BEES. 1,000,000** Sections. HIVES, Smokers, QUEENS, etc. Send for price list to E. T. FLANAGAN Box 783, Belleville, Illinois.

SUPPLIES. Langstroth Bee-hives, and every thing needed in the bee yard; 30-page catalogue free. **"BUSY BEES,"** a book telling how to manage them, 10 cents in stamps. *WALTER S. POUDER,* 5-12db

175 E. WALNUT ST., INDIANAPOLIS, IND.

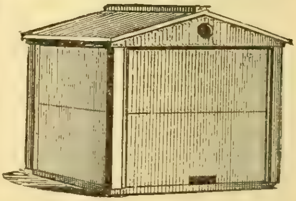
SHORT-HORN CALVES

For sale. Registered in purchaser's name and delivered at express office in light crate (from one to six months old) $25.00 each; 20 head of cows and heifers, and 4 young bulls, cheap. For prices and breeding, address 7-8-9d

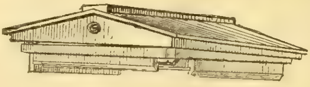
CALVIN LOVETT, Otsego, Mich.

☞In responding to this advertisement mention GLEANINGS.

Great Crash in Prices!



From 10 to 25 % discount from former prices. My 40-page catalogue for 1892 gives reasons. I offer a new-style chaff hive at one-half the cost of other styles, and just as good. This hive can be taken apart almost instantly, and packed up in small space. It can be used on any hive (see cut). Don't fail to get my 32d annual price list. I mean business, and am bound to sell as good as the best, and at equally low prices.



Address *WM. W. CARY,*
6tfdb *COLERAINE, MASS.*

Please mention this paper.

VIOLINS MURRAY & HEISS. CLEVELAND OHIO. MUSICAL GOODS OF ALL KINDS. GUITARS CATALOGUE FREE MANDOLINS

☞In responding to this advertisement mention GLEANINGS.

PERSONS WANTING **APIARIAN SUPPLIES**

Would do well to send to W. E. CLARK, Oriskany, Oneida Co., N. Y. Send for illustrated price list. Dealers should send for Dealers' list for Smokers. 6-12db

☞In responding to this advertisement mention GLEANINGS.

F. F. ALDERFER,

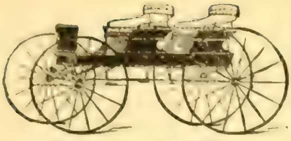
HARLEYSVILLE, - MONT. CO., PA.

Breeds the best S. C. W. and B. Leghorn stock and eggs for sale; also Comb Foundation, Italian Bees and Queens. Satisfaction guaranteed. Write him. 7-8d

· DO YOU WANT ·

Good, gentle, and prolific bees? Then get an Albino (or white-banded Italian) queen. Catalogue free.
5tfd A. L. KILDOW, Sheffield, Illinois.

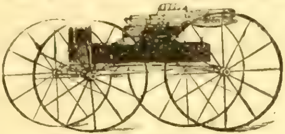
☞In responding to this advertisement mention GLEANINGS.



"A" Grade $40.

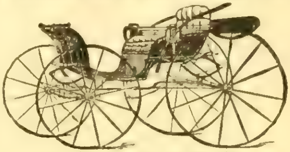
ALLIANCE, GRANGE, LEAGUE

F. M. B. A. Members and thousands of other good men and true, patronized us so liberally last year that we were compelled to buy, build and increase our facilities until now we now have one of the **LARGEST CARRIAGE and HARNESS FACTORIES IN THE WORLD.** The Alliance Factory runs when others shut down or break up.



"A" Grade $46.

Send for our handsome, illustrated Catalogue, showing over 100 different styles of Vehicles and Harness, and you will understand why all this phenomenal success and immense business. We actually give more for less money than any Buggy or Harness factory in the world. All goods hand made and warranted for years. Get our prices and compare them with your dealers.



"A" Grade $72.50.

ALLIANCE CARRIAGE CO. CINCINNATI, O.

North Court St., opp. the Court House.

☞In responding to this advertisement mention GLEANINGS.

I am Pushing Ahead!

And am so far in the lead that I challenge any one to show up superior bees to my best

Five-Banded Golden Italians.

Large, beautiful, gentle, and good honey-gatherers; the results of 10 years' careful breeding. Try them. Satisfaction guaranteed. Queens in May, $1.25 each; 6 for $6. After June 1, $1 each; 6 for $5. For full particulars, send for descriptive circular.

CHAS. D. DUVALL, Spencerville, Md. 7tfdb

☞In responding to this advertisement mention GLEANINGS.

BEESWAX!

Foreign and domestic. Crude and refined.
A stock constantly on hand.
Write for prices, stating quantity wanted.

ECKERMANN & WILL, Syracuse, N. Y.

☞In responding to this advertisement mention GLEANINGS.

FREE! My new price list of **Pure Italian Bees, White and Brown Leghorn Chickens, White and Brown Ferrets, and Scotch Collie Pups.** Address

N. A. KNAPP, Rochester, Lorain Co., O.
8tfdb

CABBAGE-PLANTS.

Henderson's Succession, Flat Dutch, and Early Summer. Extra fine plants. Five dollars per thousand. Acme and Beauty Tomato plants; ten dollars per thousand. Italian bees and queens for sale.

S. G. WOOD, Birmingham, Ala.

Please mention this paper.

THE DEAD LINE

IN **BEE-KEEPING**—March and April—is at hand. Read

"THE WINTER PROBLEM,"

and keep up with the times. **Price 50 cts.**

G. R. PIERCE, Blairstown, Benton Co., Iowa.

☞In responding to this advertisement mention GLEANINGS.

POLISHED

One-Piece Sections Our Specialty.

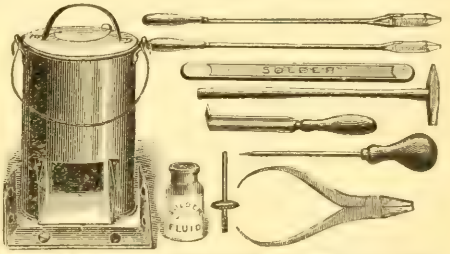
I challenge comparison of my goods with those of any other make on the market. If, upon fair trial, they are not found superior to, and cheaper than, any makes of so-called snow-white, premium, sandpapered, etc., sections, the goods will cost you nothing, and you are invited to publish me as a fraud.

I can fill orders promptly for any width at $2.75 per M.; or $2.50 per M. in 5000 lots at factory at Wauzeka, Wis. Other supplies shipped from Capac.

8tfdb Address **B. WALKER, Capac, Mich.**

Please mention this paper.

OATMAN'S SOLDERING AND REPAIR KIT



Consists of fire pot, two copper soldering irons, bar of solder, soldering fluid and brush, all-steel scraper, hammer, scratch-awl, and plyers, as shown in the cut. Any one purchasing this outfit will get full directions, which will enable him to repair tin, copper, brass, metals, and iron; also how to keep the soldering-irons in order. Whole kit, boxed, 12 lbs. Shipped on receipt of $2.00. Agents wanted.

O. & L. OATMAN, Medina, Ohio.

Mention this paper.

FOR SALE.

50 colonies of Italian bees in A. I. Root's 8-frame Dovetailed and Langstroth's 10-frame hives, at five dollars per colony. A liberal discount for more than one colony. Safe delivery guaranteed. 8-11db

JOHN GRANT, Batavia, Ohio.

MARTIN'S PROLIFIC BUCKWHEAT.

Same kind as advertised last year in GLEANINGS. On my sandy soil it yields double the quantity per acre as Japanese. Gives excellent satisfaction. $1.00 per bu., cash, on board cars here, sacks included.

WM. MARTIN,
8-11db **Highland, Oakland Co., Mich.**

Please mention GLEANINGS.

Foundation, Wholesale and Retail.

If you would like to see how nice foundation can be made, send for free samples. Special prices to dealers on Foundation and Sections, etc. Free price list of everything needed in the apiary. 6tfdb (Near Detroit.)

M. H. HUNT, Bell Branch, Mich.

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All advertisements intended for this department must not exceed five lines, and you must SAY you want your adv't in this department, or we will not be responsible for errors. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To trade a large lot of Heddon hives, nicely made and good as new; some with combs complete for honey, now or after crop of '92. Write for particulars. Address D. S. Hall,
2tfdb South Cabot, Vt.

WANTED.—To exchange job printing of any kind for black or Italian bees. A. D. Ellingwood,
6-9db White Mountain Apiarist, Groveton, N. H.

WANTED.—To exchange brood-foundation, at 40c per lb., or light for the boxes at 50c per lb., for wax at 30c per lb. B. Chase,
7tfdb Earlville, Madison Co., N. Y.

WANTED.—To exchange choice Carniolan and Italian queens for supplies. 8-9d
F. A. Lockhart & Co., Lake George, N. Y.

WANTED.—A man of good habits and good references, to run an apiary for comb honey. Write at once, stating qualifications and wages wanted.
D. B. Banks, 201 E. Baltimore St., Baltimore, Md.

WANTED.—To exchange for bees, 1000 brood and extracted combs, 6 and 10 inch foundation-mills, dipping-board, etc., shotgun and Safety bicycle, write to me. B. W. Hopper,
9-10d Box 224, Garden City, Kan.

WANTED.—To exchange Simp. sections, foundation, crates, shipping-cases, and hives, also tomato, celery, cabbage, verbena, pansy, phlox, and other plants, for wax, typewriter, bulbs, plants, seeds, curiosities, and offers.
9d Chester Olmstead, East Bloomfield, N. Y.

WANTED.—Young man to take charge of small apiary of 100 colonies. Write, giving experience and wages expected. A. A. Knott, Berthoud, Col.

WANTED.—To exchange S. C. White and Brown Leghorns and Pekin duck eggs for Silver or Golden Wyandotte eggs, or pure Italian queens or thin foundation. J. E. Pryor, Middle River, Iowa.

WANTED.—To exchange a foot-power saw for queens and bees by the pound. Write for particulars. W. S. Wright, Battle Creek, Mich.

WANTED.—To exchange bees in double-walled Hives, 10 Simplicity frames, wired foundation, for Barnes foot-power saw or offers.
E. Hanchett, 162 Miles Ave., Cleveland, Ohio.

WANTED.—To exchange for any thing useful on the farm, Canary birds, fine singers, raised from imported stock. B. Geissler,
9-10d Basco, Hancock Co., Ill.

TO exchange.—One setting of Black Minorca or Red Cap eggs, for one pound of Italian bees and queen. 50 pounds wanted. E. P. Aldridge,
9d Franklin Square, Ohio.

WANTED.—To exchange bees at 75c per lb. about June 5, as my honey season closes then, for nails, watch, sewing-machine, cloth, etc. What have you? Ira D. Alderman, Way Cross, N. C.

TO exchange.—Bee-hives for beeswax. 9-12db
Wm. Iden, Etna Green, Ind.

WANTED.—To exchange a good pony circular sawmill for a good 5 or 6 H. P. portable engine and boiler. J. R. Landes, Albion, O.

TO exchange.—One 4 L. frame Stanley reversible extractor, been used only once; cost $21.00.
J. Singleton, 34 Public Square, Cleveland, O.

WANTED.—May 20, 1892, a young man to take charge of small apiary, and to do other outdoor work. Address, stating experience and salary wanted. J. S. Hartzell, Addison, Pa.

500 Colonies of Bees Devoted to Queen-Rearing.
Write for prices on large quantities.
TWO MILLION SNOW-WHITE SECTIONS.
Write for prices on large quantities.
Send for our 24-Page Catalogue of Dovetailed Hives, Smokers, Extractors, Etc.
LEAHY M'F'G CO., Higginsville, Missouri.
Please mention this paper. 5tfdb

AND DON'T YOU FORGET IT

I TELL you what, Jones, **Levering Bros.** sell the best goods and at the lowest price of any one I've struck yet. The largest and best equipped
Bee-Hive Factory
in the West. The Dovetailed Hive and New Hoffman self-spacing Frame a specialty. Every thing used by practical bee-keepers at wholesale and retail. Send for their free Illustrated Price List, and save money. Supply Dealers; send for their Wholesale List. Address
LEVERING BROS.,
6tfdb **Wiota, Cass Co., Iowa.**
Please mention this paper.

TESTED ITALIAN QUEENS.
50 tested Italian queens for sale at $1.00 each, to be delivered June 1st to 15th, all raised last fall from an imported, and best select tested queens. Untested queens, July 15th and after, 70c each; 3 for $1.75; 6 or more, 50c each. D. G. Edmiston,
Adrian, Lenawee Co., Mich.
☞In responding to this advertisement mention Gleanings.

SECTIONS.
$2.50 to $3.50 per M. Bee-Hives and Fixtures cheap. **NOVELTY CO.,**
6tfdb **Rock Falls, Illinois.**
☞In responding to this advertisement mention Gleanings

Black and Hybrid Queens For Sale.

For the benefit of friends who have black or hybrid queens which they wish to dispose of, we will insert notices free of charge, as below. We do this because there is hardly value enough in these queens to pay for buying them up and keeping them in stock; and yet it is oftentimes quite an accommodation to those who can not afford higher-priced ones.

I have, by purchase and otherwise, 30 hybrid and mismated queens at 20c each; or 4 for $1.00. Can ship by return mail. W. H. Laws, Lavaca, Ark.

I have 50 good hybrids and black queens for sale at 25c each, ready for immediate delivery.
6-7d W. H. Heastman, Citra, Marion Co., Florida.

To all who will send me cages filled with candy, and stamp on, you take risk of loss, I will put hybrid queens 25c. C. C. Kirkman,
Redallia, Pitt Co., N. C.

30 black queens, 6 hybrid, to mail May 10 to 15. Blacks, 25c; hybrids, 50. Safe arrival guaranteed. None but good queens sent, stamps taken.
E. F. Quigley, Unionville, Putnam Co., Mo.

Twenty-five to thirty mixed queens, some pure and purely mated. Choice in turn. Price 25c each. Ready May 1 to 15. Dr. J. W. Crenshaw,
Versailles, Woodford Co., Ky.

Yellow, Extra, Excellent

B Italian Queens for sale in June at Chenango Valley Apiary **E** Tested, $1.50 Untested, $1 Order early Send for list **E** Two-frame Nucleus with Queen, $2.00. Don't pass by **S**

MRS. OLIVER COLE, Sherburne, Chenango Co., N. Y.

Please mention this paper.

CANADA BEE-KEEPERS

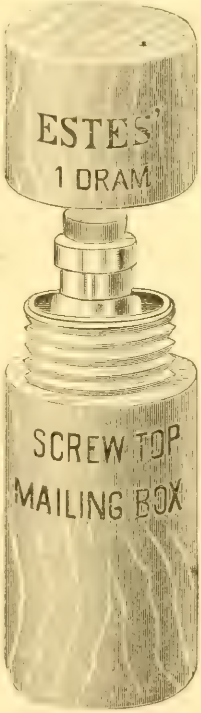
Will save money by purchasing supplies from T. Phillips & Co., Orillia, Ontario, who manufacture all styles of Hives, Sections, Frames, Foundation, Extractors, and Smokers. Also many new things not handled by other dealers. Send for catalogue and samples of foundation, free.

T. PHILLIPS & CO.,
3-5d **ORILLIA, ONTARIO, CAN.**

Please mention this paper.

FOR SALE CHEAP! At LeRoy, N. Y., 100 L. hives with fine surplus attachments; also Barnes saw, etc. 9d
W. C. GILLETT, 1101 Blue Island Ave., Chicago, Ill.

MAILING . .
. . BLOCKS
—FOR—
SAMPLES .
—OF—
. . HONEY.



The adjoining cut shows a very convenient package for mailing samples of honey and other liquids. The cut is only about half size of the one we are prepared to furnish, which holds ½ ounce, and gives a good taste of the honey and some to spare. We also use a very wide-mouthed bottle so the honey will run out easily. You notice the top screws on, closing it tight and making a very handy package, easily opened, and accepted by the postal authorities. We have just bought 25 gross so as to be able to sell them at only 5c each, 55c per doz. By mail, 3c extra on one, or 2c each extra in quantities.

A. I. ROOT,
Medina, O.

KIND WORDS FROM OUR CUSTOMERS.

I think GLEANINGS is an excellent paper. I don't see how I can ever do without it. A. J. BUCHER.
Decherd, Tenn., Apr. 11.

How far does GLEANINGS go? I still have orders rolling in for carnations which I advertised. I shall not be surprised to get an order now from Japan or some other far country, telling me that they saw it in GLEANINGS. S. LENTON.
Piru City, Cal., April 4.

I have got to be with you in your religious talks, and I think Our Homes was the thing that set me to thinking, and finding Christ, more than any thing else. GEO. ALLEN.
Union Springs, N. Y.

I should be lost, almost, without GLEANINGS' regular visits; and long may it live and prosper is my wish. E. D. NICHOLS.
Montrose, Colorado.

I have just received a nice lot of your new Hoffman frames, and think they are the finest I ever saw. I shall use them altogether this season.
Mocksville, N. C. E. E. HUNT.

OUR BOOK ON TILE DRAINAGE.

A. I. Root, of Medina, O., has recently brought out another of those excellent little handbooks for farmers. This is one on tile drainage, and is by W. I. Chamberlain, late president of the Iowa Agricultural College. Mr. Chamberlain dug this book out with the spade. In other words, it is his own experience, and we shall have more to say of it after awhile.—*Western Stockman and Cultivator, Omaha, Neb.*

Job Lot of Wire Netting.

CUT PIECES AT A LOWER PRICE THAN FULL ROLLS.

Having bought from the factory, at our own price, five or six hundred remnants, as listed below, we are able to give you the choice of a great variety of pieces at the price of a full roll or lower. Full rolls of netting are 150 ft. long, and when they are cut we have to charge nearly double the full-roll rate, because it is so much trouble to unroll, measure, and cut, and run the risk of having a lot of remnants on hand. No doubt it is in this way that the following remnants have accumulated. It costs a good deal to get all this in shape so we can easily pick out from the lot the piece you want. But to move it off quickly, we put the price down so you can all have a chance at it. Remember, first come, first served. In ordering, therefore, name a second or third choice, or say that we may send the nearest we can if the piece selected is gone. On 5 pieces deduct 5 per cent, on 10 pieces 10 per cent. These remnants are shipped only from here. If any of you want to secure some, and don't want them shipped till later, when you will order something else, so as to save freight, pick out the pieces you want, send remittance with the order, with request to lay by till called for, and we will mark them as belonging to you. We prefer to ship them right out, however.

LIST OF POULTRY-NETTING REMNANTS.

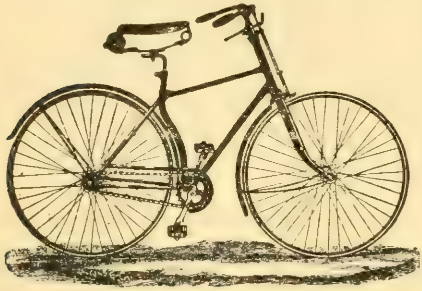
Width in in's.	Size of Mesh.	No. of Wire.	Cts. p'r Sq. Ft.	Length of each piece. Multiply by the width in feet to get the number of square feet in each piece. Then multiply by the price per foot for the price per piece.
32	2	20	⅝	27.
2	2	19	¾	103, 100.
72	2	18	1	61, 53, 48, 35, 22, 22.
76	2	17	1¼	23, 15.
36	2	16	1½	23; 18 in. wide, 40; 24 in. wide, 94, 88
72	2	16	1½	60, 58, 56; 30 in. wide, 46, 24; 48 in. wide, 48.
18	2	15	2	87, 30; 12 in. wide, 100.
24	2	15	2	100, 90, 69, 52, 33, 13, 12, 60 in. wide, 21, 20.
42	2	15	2	121, 23, 8; 72 in. wide, 36, 33, 9.
48	2	15	2	72, 49, 48, 45, 38, 37, 30, 29, 26, 14.
30	1½	19	1	33, 36 in. wide, 47.
42	1½	19	1	85, 59; 60 in., 56; 72 in.
18	1½	18	1¾	40, 14; 54 in., 12; 60 in., 34.
30	1½	16	2½	79; 36 in., 14; 42 in., 34; 48 in., 92.
36	1¼	20	1½	22.
36	1¼	19	1¾	48, 12, 24 in., 42; 30 in., 75; 48 in., 78.
36	1¼	18	2	15, 10; 42 in., 80; 48 in., 22; 72 in., 8.
48	1	20	1¾	53; 72 in., 51; 30 in., 96; 9 in., 40.
24	1	19	2	26; 9 in., 24; 42 in., 50, 34; 48 in., 100, 40; 60 in., 26; 18 in., 50.
32	1	18	2½	85; 24 in., 23; 30 in., 69.
36	1	18	2½	48 in., 30; 60 in., 59.
9	¾	20	2¾	7; 36 in., 55
24	3	16	1	19: 36 in., 86; 42 in., 14.
36	3	15	1⅛	63; 48 in., 60.
48	3	14	1¼	45; 72 in., 100, 70.
14	4	14	3	166, 52, 35, 23
22	4	14	4	107, 68, 35, 17, 15.
30	4	14	4½	52, 47, 36, 33, 30 29, 19, 18, 13, 9.
34	4	14	4¾	43, 37, 34, 25, 24, 23, 18.
42	4	14	5	68, 62, 62, 23, 22, 22, 15, 12, 12, 12, 8, 6.
46	4	14	5½	82, 50, 44 11, 5.
18	8	13	2	68 ft.; 36 in., 200 ft. at 4c; 45 in., 247 ft. at 5c.

Four and eight inch fencing. Price in fourth column is the price per foot in length.

A. I. ROOT, Medina, O.

EMPIRE

Safety ✝ Bicycles.



Strictly High-Grade Machines.
Made of the Best Materials.
Solid and Cushion Tire.
For Ladies and Gentlemen.

PRICES:

Gents' 30-in. Solid Tire, like cut		$80.00
" "	1¼-in. Cushion Tire	90.00
Ladies' 28-in. Solid Tire		80.00
" "	1¼-in. Cushion Tire	90.00

A. I. ROOT, Medina, O.

ONE PUNIC QUEEN and AM. APICULTURIST One Year, $2.50
Golden Carniolan and Am. Apiculturist One Year, 2.00
Beautiful Italian and Am. Apiculturist One Year, 1.50

Eight-page catalogue free.

8tfdb **H. ALLEY, Wenham, Mass.**

☞In responding to this advertisement mention GLEANINGS.

ALWAYS
ON
TOP

Our strain of **Italians** have reached the **top**. Golden-colored queens bred for business. **Tested** queens in May, $1.50; 3 for $4.00. Untested, $1.00; 3 for $2.50. **Nuclei** and full colonies at special prices. **Bee Supplies** of all kinds. Send for circular giving full particulars. **JNO. NEBEL & SON, High Hill, Mo.**

☞In responding to this advertisement mention GLEANINGS.

JENNIE ATCHLEY

Will send you queens by return mail. Safe arrival and satisfaction guaranteed; either three or five banded strains. Untested, April and May, $1.00 each; six, $5.00; after, 75c each; six, $4.20; or $8.00 per dozen. Tested and breeding queens on application; try my queens. Money-order office, Greenville.

JENNIE ATCHLEY,
1tfdb **Floyd, Hunt Co., Texas.**

Please mention this paper.

EARLY QUEENS FROM TEXAS.

From my choice 3 or 5 banded stock. My bees are very gentle, good workers, and beautiful. Safe arrival and satisfaction guaranteed. One untested queen, April and May, $1.00; six for $5.00; later, 75c. Orders booked now; money sent when queens are wanted. Send for price list.

J. D. Givens, Lisbon, Tex.

Please mention this paper.

DON'T pay two prices for Bees, Queens, and Supplies, but send for my **Catalogue** with **Discount** sheet, on **5-Banded Queens**, and get the best at ½ price. CHAS. H. THIES, Steeleville, Ill.

SAVE MONEY.—Send to J. P. H. Brown, Augusta, Georgia, for his price list of supplies. Hives and foundation at wholesale rates. 4tfdb

---

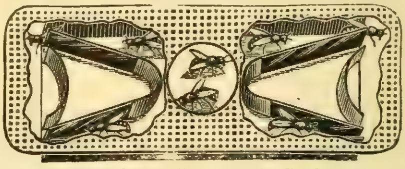
Good Queens Cheap.

300 tested Italian queens, raised last season, for sale at $1; $10 per doz. A few hybrids at 25c each. They will be shipped about June 15th to 25th, or later if desired. Have order booked now and send money when you want them. My bees have been ***BRED FOR BUSINESS***, and these are bargains. Nuclei and full colonies at very low rates.

J. A. GREEN, Dayton, Ill.

☞In responding to this advertisement mention GLEANINGS.

Hastings' Lightning Bee-Escape.



Send for sample of Hastings' "Lightning" Bee Escape, and you will be convinced that it is the best and most practical escape yet produced. It will clear the supers in a short space of time (2 to 4 hours), and it is impossible for the bees to clog the passage, as they can not return. Each escape guaranteed as represented. Price, by mail, each, $0.20; by mail, per doz., $2.25. Full directions with each escape. Electrotypes furnished free for dealers' catalogues. Write for discount. 7-12db

M. E. HASTINGS, New York Mills, Oneida Co., N. Y.

Please mention this paper.

Send for Price List to
R. E. HARBAUGH,
Manuf'r and Dealer in Bee-Keepers' Supplies.
Breeder of Italian and Carniolan Bees and Queens, Light and Dark Colored Ferrets.
25th and Clay Sts., - - - St. Joseph, Mo.

Italian Bees and Queens For Sale.

Untested queens, $1.00; tested, $1.50. Bees, $1.00 per lb. Colony, $5.00. Also barred Plymouth Rock eggs for sitting, $1.00 per 13.

7-16db MRS. A. A. SIMPSON, Swarts, Pa.

☞In responding to this advertisement mention GLEANINGS.

POULTRY. Choice Fowls and Eggs for sale at all times. Finely illustrated circular free. GEER BROS St. Marys, Mo. 21tfdb

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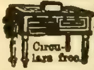
Hatch Chickens by Steam.

IMPROVED EXCELSIOR INCUBATOR


Circulars free.

Will do it. Thousands in successful operation. ***Simple, Perfect and Self-Regulating.*** **Lowest-priced first-class Hatcher made. Guaranteed to hatch a larger percentage of fertile eggs at less cost than any other.**

Send 6c. for Illus. Catalog. GEO. H. STAHL, Quincy, Ill.

☞In responding to this advertisement mention GLEANINGS.

Bee-Hives and Sections

A specialty. Foundation, Smokers, etc., in stock. Send for new list, free.

4tfdb **W. D. SOPER, Jackson, Mich.**

Please mention this paper.

Western Bee-Keepers' Supply House

Root's Goods can be had at Des Moines Iowa, at **Root's Prices.** The largest supply business in the West. Established 1886 Dovetailed Hives, Sections, Foundation, Extractors, Smokers, Veils, Crates, Feeders, Clover Seeds, etc. Imported Italian Queens. Queens and Bees. Sample copy of our Bee Journal, **"The Western Bee-Keeper,"** and **Latest Catalogue** mailed **Free** to Bee-keepers.

JOSEPH NYSEWANDER, DES MOINES IOWA

3tfdb

In writing to advertisers please mention this paper. 4tfdb

DON'T FORGET
—THAT THE—
PECOS VALLEY,
The Fruit Belt of New Mexico,

Offers better advantages for persons desiring to engage in fruit culture than any other place on the continent.

Note the following table, showing growths made by various fruit trees, shade trees, grapevines, etc., during the past summer:

Name of Grower.	*P. O. Address*	*Tree or Vine.*	*Growth in feet,*	*inch.*
Witt Bros.,	Eddy, N. M.,	Raisin Grape,	16	9
"	"	Apple,	4	9
"	"	Pear,	4	8
"	"	Plum,	5	9½
"	"	Cherry,	1	9
"	"	Crab Apple,	1	8½
"	"	Mulberry,	1	8
F. G. Campbell,	Eddy, N. M.,	Black Locust,	8	7
G. W. Blankenship,	Eddy, N. M.,	Apple,	3	11
"	"	Apricot,	5	8
"	"	Peach,	3	9
"	"	Box Elder,	6	1
"	"	Mulberry,	7	8
"	"	Lombardy Poplar,	6	2
"	"	Castor Bean,	8	4
Jas. Hogg,	Seven Rivers, N. M.,	Peach,	7	2
"	"	Cottonwood,	16	3
R. M. Gilbert,	Seven Rivers, N. M.,	Osage Orange,	14	7
"	"	Native Willow,	16	5
"	"	Pecan,	6	2
"	"	Blackwalnut,	4	11
"	"	Plum,	8	1
"	"	Mulberry,	6	4

Witt Bros. have several cottonwoods, 9 years old, that are 62 to 64 inches in circumference and over 60 feet high. Mr. Hogg has a peach-tree 3 years old from the seed that is 3½ inches in diameter and 17 feet 5 inches high. He has a cottonwood 4 years old that is 28 inches in circumference. Mr. Gilbert has a pecan-tree 6 years old that is 24 inches in circumference and 22 feet high. He has a blackwalnut-tree 3 years old, from the seed, that is 12 inches in circumference, 11 feet 10 inches high, and that bore several walnuts this year. Maynard Sharpe, of Eddy, has 2 peach-trees, 2 years old, from the seed, that bore and matured 7 peaches this year. He has 1 apple-tree, 2 years, from the seed, that bore 3 apples the past season.

Apples, Peaches, Pears, Apricots, Nectarines, Figs, Prunes, Almonds; Muscat, Tokay, Muscatelle, and other varieties of Grapes now in successful bearing in this Valley. Over 1000 acres of Muscat Grapes being planted this year.

Send for maps, illustrated book, etc.

PECOS IRRIGATION & IMPROVEMENT CO.,
EDDY, NEW MEXICO.

☞In responding to this advertisement mention GLEANINGS.

LOCATION

Is a big *point*, in supplying goods; ours gives you low freight rates. As we sell low, you should have our circular of supplies. 1-18db

I. J. STRINGHAM, 92 BARCLAY ST., N. Y.

Please mention this paper.

Yellow, Extra, Excellent

B Italian Queens for sale in June at Chenango Valley Apiary **E** Tested, $1.50 Untested, $1 Order early Send for list **E** Two-frame Nucleus with Queen, $2.00. Don't pass by **S**

MRS. OLIVER COLE, Sherburne, Chenango Co., N. Y.

Please mention this paper

DON'T STOP ME! I am going to send at once to C. W. PHELPS & CO.'S Wholesale and Retail Foundation Factory, Binghamton, N. Y., for a free sample of Honey Comb Foundation, and buy all of my Bee Supplies of them. Its THE place.

BEE-HIVES, Dovetailed or Otherwise.

All Kinds of Bee Supplies.

Write for free catalogue. **W. H. PUTNAM,**
8-13db **River Falls, Pierce Co., Wis.**

☞In responding to this advertisement mention GLEANINGS.

---

4 BANDED ITALIAN BEES. Tested, $1.00; Untested, 60c; Selected tested, $1.25; one 2-frame nucleus, tested queen, $2.00; untested, $1.50. Safe arrival guaranteed.

STEWART BROS., Sparta, Tenn.

LEATHER-COLORED ITALIAN
QUEENS.

One untested, $1.00; six, $5.50; twelve, $10.00; one tested, $1.50; six, $8.00: twelve, $15.00; selected for breeding *early*, each, $2.50; one year old tested, *in June only*, $1.25; six, $7.00; twelve, $13 00. Two-year-old queens, each, 50c. Descriptive catalogue mailed free on application.

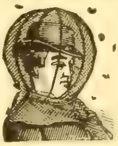
8-13db **A. E. MANUM, Bristol, Vt.**

☞In responding to this advertisement mention GLEANINGS

I DO NOT ADVERTISE

a specialty, but every thing found in APIARY. Beeswax wanted. **C. E. LUKENS,**
6-7d **19 N. 2d St., Philadelphia, Pa.**

GLOBE BEE-VEIL



By Mail for $1.00.

A center rivet holds 5 spring-steel cross-bars like a globe to support the bobinet Veil. These button to a neat brass neck-band, holding it firmly.

It is easily put together; no trouble to put on, or take off. An absolute protection against any insect that flies. Will go over any ordinary sized hat; can be worn in bed without discomfort; fits any head; does not obstruct the vision; folds compactly, and can be carried in the pocket; in short, it is invaluable to any one whom flies bother, mosquitos bite, or bees sting.

THOS. G. NEWMAN & SON, CHICAGO, ILL.

Bee - Keepers' ❋ Supplies.

We are prepared to furnish bee-keepers with supplies promptly and at lowest rates. Estimates gladly furnished, and correspondence solicited. Our goods are all first-class in quality and workmanship. *Catalogue sent free.* Reference, First National Bank, Sterling, Ill. Address 1-24db

WM. McCUNE & CO.,
Sterling, Illinois.

☞In responding to this advertisement mention GLEANINGS

Wholesale and Retail Manufacturer
and Dealer in BEE-KEEPERS' SUPPLIES.

ONE-PIECE SECTIONS A SPECIALTY,
AS GOOD AS THE BEST.

Send for catalogue. ***W. E. SMITH,***
5tfdb *Successor to Smith & Smith,*
KENTON, HARDIN CO., OHIO.

In writing advertisers please mention this paper

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CONVENTION NOTICES.

The Capital Bee-keepers' Association will meet in the Supervisor's Room of the Court-house, Springfield, Ills., at 10 A. M., May 25, 1892. C. E. YOCUM, Sec , Sherman, Ill.

SPECIAL NOTICES.

CORRECTION.

Since the editorial on adulterated honey on page 387 went to press (see beginning of the next to the last paragraph) we have just received a letter from Chas. F. Muth, to the effect that he did not send samples of any honey to Prof. Wiley to be analyzed, and which, as stated elsewhere, were, by the professor pronounced adulterated. We were misinformed on this point, and therefore in justice to Prof. Wiley, make this correction. Our readers will therefore make a note of this.

LAWN-MOWERS.

Now is the time for trimming the lawns and bee-yards to make them neat and attractive. You can not do this successfully without a good lawn-mower. We are prepared to supply you with one of the best mowers on the market at prices lower than former years. We sell the Globe in five sizes, as follows: 10 in., $4.65; 12 in., $5.00; 14 in., $5.35; 16 in., $5.65; 18 in., $6.00. We have also the Young America, a single driver, in two sizes, as follows: 10 in., only $3.50; 12 in., $4.20. In lots of 2 at a time, 3 per cent off; 3 together, 5 per cent off; 5 or more in one order, 10 per cent off. The quantity may be made up of assorted sizes, and both kinds if desired.

OUR INDUSTRIAL BOOKS ON AGRICULTURE, ETC.

We have now in stock, ready to send out, five books, as follows: The A B C of Potato Culture; The Winter Care of Horses and Cattle; The A B C of Strawberry Culture; Tile Drainage; Maple Sugar and the Sugar-Bush. The regular price of the above would be $2.00. If ordered all at once, however, we will furnish them postpaid for only $1.50; if sent by freight or express with other goods, only $1.25. For only 25 cts. more we will include the book on tomato culture, as described below.

THE NEW BOOK ON TOMATO CULTURE.

Well, it has got started, and the title-page reads: "Tomato Culture; In three parts; Part First, Tomato Culture in the South; Part Second, Tomato Culture Especially for Canning-factories; Part Third, Plant-growing for Market, and High-pressure Gardening in General; A Practical Book for those who Work under either Glass or Cloth as Protection from Frost; by J. W. Day, D. Cummins, and A. I. Root." The first 32 pages are already printed; but if you are in a hurry to make use of the information it contains, send us the price of the book now and we will send the proof-sheets as fast as they come from the press, and a complete bound book as soon as it is finished. We make this offer because it usually takes several months to finish a book complete, make engravings, etc.; and at the same time the matter contained in one of these industrial books may save you many dollars, even in a single season. Part III., by A. I. Root, will contain a chapter headed, "How to Support a Family on a Quarter of an Acre of Ground." In order to be sure that I am right in my undertaking, I have visited, and expect to visit, all the prominent men I know of who make their living by raising crops under glass and under cloth; and this new matter of warming the ground by steam carried through common drain tile, so as to force crops without the aid of either *glass* or *cloth* is going to be very fully considered. The price of the book will be 35 cts.; by mail, postpaid, 40 cts. The engravings alone will cost over a hundred dollars.

SELLING ONION-PLANTS.

This is the exciting topic now with plant-growers. Pretty much every vegetable-plant grower has raised more or less of them, but no one has enough to supply the demand. The prevailing price seems to be $1.00 per 1000 as they come from the seed-bed; and where they are raised so as to have them, the greater part of them, the size of a common lead-pencil when set out, they go off like hot cakes; and there is money in raising the plants for sale, too, I tell you. At present we have a large stock of Prizetaker and White Victoria. They will be large enough to transplant in very few days, and we hope to have enough for all demand; but I tell you, people are going for them lively. The postage on a thousand plants depends somewhat on the size; but it generally runs from 25 to 50 cents.

PURE ITALIAN BEES.

By the pound, 90 cents. Untested queens from imported mother, 90 cts. Two-frame nuclei, both frames containing brood with all adhering bees, and untested queen from imported mother, $2.00. Tested queens, $1.50. Satisfaction guaranteed.
MRS. A. F. PROPER,
PORTLAND, JAY CO., IND.
Please mention this paper.

ITALIAN QUEENS FREE

With supplies. Root's Dovetailed hives and all other supplies cheap. Write for particulars and save money. A. F. McADAMS, Columbus Grove, O.
Please mention this paper. 9tfdb

FOR SALE! **Our Box Machines.** 2 Cut-Off Tables, Root's make; 2 Rip Tables: 1 18-inch Frank Pony Planer; 1 12-inch Cigar-Box Planer; 1 Shimer Box Board Matcher. All in good shape. Will sell part or all at once. Counter-shafts and belts go with machines. Will sell cheap.
W. D. SOPER, Jackson, Mich.
Please mention this paper.

QUEENS FREE.

Italians, untested, 75c. Warranted, $1.00. Tested, $1.25. **One Choice Breeder Given Away** with each dozen. **Five-Banded Golden Queens, $1 to $2.** Satisfaction guaranteed.
F. C. MORROW, Wallaceburg, Ark.
Please mention this paper.

FOR CASH.

Pure Italian queens in June and after, one untested, 80c; ½ dozen, $4.50. Tested queens, $1.50 each. Guarantee safe arrival. Address 10d
D. E. ALDERMAN, CLINTON, SAMPSON CO., N. C.

A B C OF STRAWBERRY ✢ CULTURE.

A ✱ BOOK ✱ FOR ✱ BEGINNERS.

BY T. B. TERRY.

This is Terry's latest and best work, and has received some very high words of praise. Who that keeps bees does not also have a little garden-patch? If you would learn to raise in it that most luscious of all fruit, the strawberry, with the best results, you can not be without this little book. Even if you don't grow strawberries you will be the better for reading it. Pages one-half size of this. Fully illustrated; 144 pages. Price 35c; by mail, 40c.
A. I. ROOT, MEDINA, O.

HONEY COLUMN.

CITY MARKETS.

NEW YORK.—*Honey.*—Very little demand for comb honey; season about over; quite a little of it on the market; that is, buckwheat and fair, but no fancy. Quite a little demand for extracted southern honey, with very little on the market; none coming in of any account. Prices range from 65@75c per gallon; demand for clover and buckwheat extracted on the decrease. Clover, 6½@7; buckwheat, 5@6. *Beeswax* keeps firm at 27@29.

May 10. CHAS. ISRAEL & BRO.,
110 Hudson St., New York.

KANSAS CITY.—*Honey.*—Demand poor, with supply well cleaned up. We quote: Comb, 1-lb., fancy, 12; dark, 8@9. Extracted, white, 7; dark, 5@6. *Beeswax*, none on the market.

May 9. HAMBLIN & BEARSS,
514 Walnut St., Kansas City, Mo.

ST. LOUIS. *Honey.*—New extracted is arriving; some few inquiries. Sales moderate. We quote: Extracted, 5@5½; cans, 6½@7. No demand for comb honey. *Beeswax*, 27½.

May 9. D. G. TUTT GRO. CO.,
St. Louis, Mo.

ALBANY.—*Honey.*—The continued cool weather and short maple-sugar season has favored the continued sale of comb honey, and we would have closed out all of our stock had we not received three or four small consignments during the past week. Prices continue unchanged, 5@10. Extracted, 6@8. *Beeswax*, 26@28.

CHAS. MCCULLOCH & CO.,
May 9. Albany, N. Y.

CHICAGO. — *Honey.* —Very little change since last quotations; comb is slow, but offerings are not large. Extracted is steady, and prices firm at 6@7@8, clover bringing the highest price. *Beeswax*, 27.

R. A. BURNETT,
May 7. 161 So. Water St., Chicago, Ill.

CINCINNATI.—*Honey.*—There is a general dullness prevailing in the demand for comb honey, with prices nominal at 12@14 for best white in a jobbing way. Demand for extracted honey was slow for the last few weeks, at 5@8 on arrival.

Beeswax. — Demand fair, at 25@27 for good to choice yellow on arrival.

May 9. CHAS. F. MUTH & SON,
Cincinnati, O.

BOSTON. — *Honey.* — No change in the honey-market. Slow sale, and fair stock on hand.

May 9. BLAKE & RIPLEY,
Boston, Mass.

DETROIT.—*Honey.*—No change in prices since last quotations, and not much honey left to quote. *Beeswax*, in fair demand, 27@28.

May 9. M. H. HUNT,
Bell Branch, Mich.

KANSAS CITY.—*Honey.*—The demand for comb honey does not increase very fast. Sales slow. No. 1 white comb 13@14c; No. 2, 12@13; No. 1 amber, 11@12; No. 2, 6@8. Extracted, white, 6@6½; amber, 6; dark, 5. *Beeswax*, 23@27.

CLEMONS, MASON & CO.,
May 10. Kansas City, Mo.

JUST OUT!

TILE ✠ DRAINAGE.

BY W. I. CHAMBERLAIN, A. M., LL. D.,

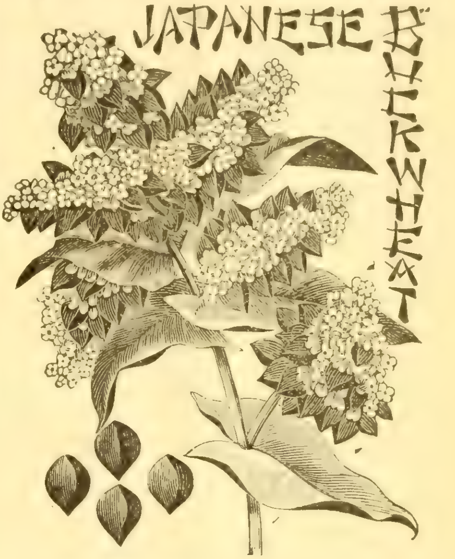
Formerly Secretary of the Ohio State Board of Agriculture, and late President of the Iowa State Agricultural College. At present Associate Editor of the Ohio Farmer.

This is a valuable companion to our other rural books. It embraces the experience of forty years of one of our foremost practical agriculturists, who has laid with his own hands over 15 miles of tile.

Price 35c; by mail, 40c.

A. I. ROOT, MEDINA, OHIO.

Japanese Buckwheat.



This is one of the most profitable of farm crops, and is especially valuable to the bee-keeper because of the pasturage it affords for the bees. It is harvested within three months from the time it is sown. Under fair treatment it yields 50 bushels to the acre, and rarely brings less than 50c per bushel. The time for seeding is at hand and we are prepared with several hundred bushels of choice seed, which we will sell as long as it lasts at the following prices. Former years we have run short and had to advance prices in June so as to supply orders without a loss. We hope to have enough this year for all orders, but we advise you not to put off ordering too long.

Per bushel, $1.00; ½ bushel, 60c; per peck, 35c; 1 lb., 5c. If wanted by mail, add 9c for postage. Two bushels for $1.90; 10 bushels or more, 90c per bushel. Above prices include bags to ship in.

A. I. ROOT, Medina, O.

"AND DON'T YOU FORGET IT"

I TELL you what, Jones, **Levering Bros.** sell the best goods and at the lowest price of any one I've struck yet. The largest and best equipped

Bee - Hive Factory

in the West. The Dovetailed Hive and New Hoffman self - spacing Frame a specialty. Every thing used by practical bee-keepers at wholesale and retail. Send for their free Illustrated Price List, and save money. Supply Dealers, send for their Wholesale List. Address

LEVERING BROS.,
6tfdb **Wiota, Cass Co., Iowa.**

Please mention this paper.

BEE-HIVES, SECTIONS, ETC.

We make the best goods and sell them cheap.

Our Sections are far the best on the market.

Our Works turn out the most goods of any factory in the world.

Our goods are known as the best throughout the United States and Europe.

Write for free, illustrated catalogue and price list.

G. B. LEWIS & CO., WATERTOWN, WIS.

☞In responding to this advertisement mention GLEANINGS.

THE Bee-Keepers' REVIEW

FOR 1892 AND A FINE, TESTED, ITALIAN QUEEN, OF LAST YEAR'S REARING, FOR $1.75. EITHER ALONE, $1.00. FOR $2.00, THE REVIEW, THE QUEEN AND THE 50 CT. BOOK, "ADVANCED BEE CULTURE," WILL BE SENT. W. Z. HUTCHINSON, FLINT. MICH.

P. S.—If not acquainted with the REVIEW, send ten cents for three late but different issues.

IT PAYS

To order the best made goods. For Fine Sections, Foundation, Perforated Zinc, Queen Excluders, and the best hive for comb honey now before the public, order of Dr. Tinker. PRICES GREATLY REDUCED. Address for catalogue

DR. G. L. TINKER, New Philadelphia, O.

Please mention this paper. 8-11db

YOUNG QUEENS READY

to mail to any one, anywhere at any time, in the U. S. or Canada. **ITALIANS**, untested, $1.00; 3, $2.75; 6, $5.00; per dozen, $9.00. Tested, reared last season, $2.00; 3 for $5.00. Two-frame nucleus, with any queen, $1 25 extra. Safe arrival guaranteed. Send for circular of **Dovetailed Hives**, Smokers, Foundation, **Drones**, etc. Money-order office, Clifton. **COLWICK & COLWICK, NORSE, TEX.**

☞In responding to this advertisement mention GLEANINGS.

50 CENTS WILL BUY A GOOD 2-STORY L. Hive. $1.00 Will Buy 100 L. Brood Frames. $1.00 Will Buy a Nice Golden Italian Queen. Please Write for our Circular Before you Buy your Supplies.

W. H. BRIGHT, Mazeppa, Minn.

Please mention this paper.

ITALIAN QUEENS.

Untested queens ready to mail on receipt of order, at $1.00 each; $10.00 per dozen. Tested queens, reared in 1891, same price as untested. After the first of June I will sell untested queens at 75c each; ½ doz., $4.00; per doz., $7.50. Mailed promptly on receipt of order; reared from imported stock or select stock. **W. A. COMPTON, Lynnville, Tenn.**

☞In responding to this advertisement mention GLEANINGS.

BEE SUPPLIES RETAIL —AND— WHOLESALE.

Everything used in the **Apiary.** Greatest variety and **largest** stock in the West. New catalog, **54** illustrated pages, free to bee-keepers. **E. KRETCHMER, RED OAK, IOWA.**

In writing advertisers please mention this paper.

CARNIOLAN BEES AND QUEENS. They beat them all. Never have dysentery. All queens reared from select imported mothers. Untested, 50c; 12 for $5.00. Tested, $1.00; 12 for $10.00. Select tested, $1.50. Descriptive circular free. **A. L. LINDLEY, Jordan, Ind.**

8-13db

FOR SALE.

LARGEST BEE SUPPLY BUSINESS IN CANADA.

Reputation all over America.

A Snap for some enterprising business man or firm. Good reasons for selling; only $2000 or $3000 required. Send for particulars. Address

DR. R. S. CHEFFEY, Beeton, Ont.

FOR SALE—100 COLONIES

of Italian and hybrid bees in 8-frame Langstroth hives. Price, for Italians, **$4.00;** hybrids, **$3.50** each, free on board cars here. A liberal discount for more than five colonies. I guarantee safe delivery. THOMAS GRIMM, Jefferson, Jeff. Co., Wis.

9-10d Please mention this paper.

FIVE-BANDED GOLDEN ITALIANS.

Untested 3 or 5 banded stock, $1.00; six for $5.00. Tested 3-banded, $1.25; 5-banded, $2.00; hybrids, 35c. Full colonies, nuclei, and supplies cheap; catalogue free. **CHAS. H. THIES, Steeleville, Ill.**

Please mention this paper.

ELMER HUTCHINSON

Has moved to VASSAR, TUSCOLA CO., MICH. He can furnish untested queens in April and May, raised from one of his Golden Italian 5-banded queens, that took FIRST PREMIUM at the Detroit Exposition the last two years, for $1.15 each, or 6 for $5.00. Orders will be filled for me in April and May by a queen-breeder in the South, who has one of my best breeding queens. Orders promptly filled and safe arrival guaranteed. Make money orders payable at Vassar. 7-1db

POSITIVELY

By return mail, beautiful young warranted Italian queens, at $1.00 each. Tested, $1.50. A select tested yellow-to-the-tip breeder, $2.00. Satisfaction guaranteed. **W. H. LAWS, Lavaca, Ark.**

8tfdb

DID YOU EVER SEE

One of our 5-banded red-clover queens? 100 lbs. of clover honey in poor seasons. Send for descriptive circular free. LEININGER BROS., Ft. Jennings, Ohio.

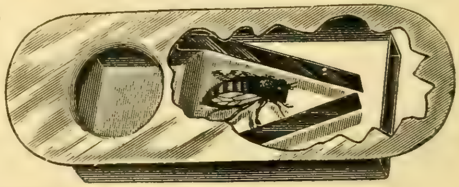
7tfdb

Porter's Spring Bee-Escape.

We guarantee it to be the best escape known, and far superior to all others. If, on trial of from one to a dozen, you do not find them so, or if they do not prove satisfactory in every way, return them by mail within 90 days after receipt, and we will refund your money.

PRICES:—Each, by mail, postpaid, with full directions, 20c; per dozen, $2.25. Send for circular and testimonials. Supply dealers, send for wholesale prices.

10tfdb **R. & E. C. PORTER, LEWISTOWN, ILL.**



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GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS.

ILLUSTRATED SEMI-MONTHLY

PUBLISHED BY A. I. ROOT.

$1.00 PER YEAR MEDINA OHIO

Vol. XX. MAY 15, 1892. No. 10.

STRAY STRAWS

FROM DR. C. C. MILLER.

WHAT a spring!

THESE STRAWS average longer than usual. Wet weather always makes straw grow long.

EDITOR COWAN is making a tour in North Africa. Now he can procure pure Punics per private purchase right in the town of Punic, Punic province.

BINGHAM has made his smoker still better by giving it a crooked nozzle with a cool handle, so you needn't turn it upside down to use, nor burn your fingers filling it.

FRIEND NEWMAN thinks it is time to raise the question as to the best date for holding the convention at the World's Fair. Make a motion, T. G. How would the last of September do?

ANTS IN HIVES can be driven away, says the *B. B. J.*, by a liberal sprinkling of powdered naphthaline. The *Indiana Farmer* says a free use of common salt will produce the same result.

A STANDARD SECTION $4\frac{1}{4}$x$4\frac{1}{4}$x$1\frac{7}{8}$ has been adopted by the Utah Association. Good move. They also resolved, that, hereafter, "honey shall be sold by such standard instead of by weight."

ISN'T THERE just a little bit of confusion about speaking of absorbents as synonymous with upward ventilation? May there not be absorbents with tight covers as well as with upward ventilation?

GOLDEN PUNICS is what Alley says he's going to have before the season of 1892 is over. Next year I suppose he'll tackle the common blacks, put a few yellow stripes on them, and then we'll have Golden Blacks.

EDITOR NEWMAN is again at his post, "rested and invigorated." Like a sensible man, he has resolved to husband his strength and let some things go. If kindly wishes would strengthen him, he ought to be a pretty strong man.

I TOOK my bees out of the cellar April 7, and I think it was all right, as they were in bad condition from not having had fire in the cellar. But with fire through the winter, I think they would have been better off in the cellar till May 1.

WARPED BOARDS can be treated as advised on page 342, but I'll tell you a better way, if it's warm weather. Just lay them on the ground in the sun, hollow side down, without any wetting, and see if they don't come "straight as a board."

ALLEN PRINGLE (*C. B. J.*) thinks I ought to get a Webster. Got one, friend Pringle, but it doesn't make *available* mean "in readiness," or "get-at-able." I'm afraid such definitions are hardly available. Where did you get them, anyhow?

THIS SPRING I've used 45 of the old-fashioned Miller feeders, the bees going up at the sides, and 22 with the Warner improvement, the bees going up in the middle. To my surprise I don't find that the bees make any difference. It certainly seems they ought to.

FROM MEDINA I have a beautiful specimen of imbedding wire by electricity, and Fred T. Hayes sends me some thin surplus foundation perfectly wired by the same method. He says it is the outgrowth of Miss Wilson's heat method, which he used satisfactorily last year.

A NEW SYSTEM of working bees, by Mr. Wells, is making some stir in England. He puts two colonies side by side, with a perforated dummy between, and queen-excluder over, having both colonies work in the same supers, and reports great success. But it seems to increase the tendency to swarm.

ELECTRICITY takes the premium for imbedding wire in foundation. It makes a more regular job of it than Emma does with ordinary heat, and her plan is ahead of any previous imbedding. Just looks as if the wire grew there. Now, friend Root, if you can get up cheap batteries, may be the rest of us can use electricity.

I MOVED 28 colonies of bees about 10 rods, May 4. Shut them up before flying in the morning, moved them to their new location, and opened them at dark, putting a board in front of each hive. Set a hive with two empty combs in the old location, to catch returning bees. Got less than a pint. Gave them to a weak colony.

I VALUE supply-dealers more than I did. This spring I wanted some more feeders in a hurry, and had the stuff cut here because I thought I hadn't time to send to Medina. I found, after I had them made, that I could have ordered them by telegraph, and had them sent by express ready made, at less expense than the stuff ready to nail cost me here.

PROF. COOK, speaking of a law against spraying fruit-trees while in bloom, says, on p. 323, "I do not think such a law would need to be used much, if ever; but as an educator it would do signal service." Don't you think it would be a good thing, professor, to have a law to prevent my planting an apiary on ground fully occupied by you, not to be used much, you know, "but as an educator"?

I WONDER if, for once, Doolittle hasn't got things a little mixed when he speaks on p. 326 about bees gnawing foundation when put on too early. I generally put on sections before bits of white wax are seen—not because it is better, but because it suits my convenience better—and I never observed any foundation gnawed at that time, but I've had foundation badly gnawed after storing ceased. Still, I may not have observed closely enough before harvest.

MRS. AXTELL properly raises the question, "If hybrids are really as good honey-producers as the pure race, then why charge more for the pure?" Even if hybrids were as good as the pure, it does not follow that successive generations of hybrids would not deteriorate. Some dairymen think half-breed Jerseys as good as the pure; but they say their herds would rapidly deteriorate if they used only half-breeds for breeding.

THE WIGGLING that Mrs. Axtell talks about on p. 324, is, I think, entirely different from the back and forward "raking" spoken of in *C. B. J.* The "wiggling," I have oftenest seen by bees on the comb; the "raking," never anywhere except on the outside of the hive. Lately I have seen it suggested that bees wriggle in this way in order to help them disgorge the contents of the honey-sac. But there doesn't seem enough of it for that.

EXPERIMENTS IN APICULTURE; HISTORY AND SUGGESTION.

PROF. COOK GIVES AN OUTLINE OF WHAT HAS BEEN DONE.

Dear Mr. Editor:—The subject of experiments in bee-keeping is one that has taken much of my thought for years; and so the article in the current volume of GLEANINGS, p. 228, from the able pen of one of our most expert bee-keepers, the late president of the American Association, was read with no slight interest. I am glad that he and the American Association are moving in this direction. I believe he is the chairman of a committee to look after this matter. I am glad that this is so. Such action is wise. I believe the government, which is looking after the interests of almost all industries in very telling ways, should not overlook that of bee-keeping. I am also quite certain that, if bee-keepers demand recognition, and ask aid, the government will not be slow to render all possible assistance.

HISTORY.

The present Assistant Secretary of Agriculture, Hon. Edwin Willits, is a man of great breadth, and so has the broadest sympathy with all useful work. He recognizes in apiculture an industry that has men of the noblest fiber in its ranks; that gathers up what would otherwise be a waste product, and hands it forth to feed the people, thus adding to the nation's wealth; that does a great though unrecognized service in securing more perfect fertilization of the flowers of our fruits and vegetables, thus adding immensely to the fruitage of our fields, gardens, and orchards. Such breadth of knowledge and such interest in all that is useful has made him the earnest friend of bee-keepers, as of all other useful citizens. Just as he was leaving his duties as president of this college, where he had done most excellent service, to assume the still more arduous duties of his present position, I talked over with him the whole field of apicultural experimentation, and told him where I thought the United States government could and should assist the bee-keepers in their work. He assured me that bee-keepers, as well as those of other industrial pursuits, should receive attention, and, when possible, aid and encouragement, so far as he was able to secure such service.

The next year after Dr. E. Willits assumed his duties I was in Washington, and was asked by both Dr. Willits and Dr. C. V. Riley, who, as head of the Division of Entomology, would naturally have supervision of experiments in apiculture, if, in case the Department wished to carry on experiments in apiculture, the bees at this college could be secured for such work. I replied that I thought they could be had for such purposes. In the autumn of 1890 Dr. C. V. Riley visited me here at the college, and asked me if I would supervise experiments here for the government. I said I would do so if he would employ a good apiarist to take charge of the work. I told him that I thought the best service which the government could render was to secure bees from the Orient; that there might be bees in the East that were superior to ours, and that this was work that private enterprise ought not to have to undertake; there were possibilities in this direction that the government ought to develop; the knowledge thus gained would be valuable to science; and if no practical good came from it, it would still be worth the time and money necessary to the enterprise. I also urged that Mr. Frank Benton was just the man to attempt this work. I think an unsuccessful effort was made to effect this importation of foreign bees. The experimental work, I suggested, was in the line of our previous work—planting for honey, breeding a race of bees, experiments to show the value of bees as fertilizers of various flowers of useful plants; effect of spraying blossoms of fruit-trees with the arsenites, etc. I do not need to say that this arrangement was made, and that we were so fortunate as to secure the services of Mr. J. H. Larrabee, of Vermont, to take immediate charge of the work.

Last autumn, while in Washington I expressed to Dr. Willits and Dr. Riley that my duties were such that I wished to resign the work so far as all responsibility was concerned, though I was willing to advise as before. I suggested that Mr. Larrabee seemed an able man for the work, and recommended that the experiments be put into his charge. I suggested that the large plant at the college could be used as before, and that the location was good; for, in case the agent wished aid in any of the sciences closely related to apiculture, as entomology, botany, chemistry, or bacteriology, there were experts close at hand to give the information or perform experiments desired in those lines. This plan commended itself to Drs. Willits and Riley, if we may judge from the fact that Mr. Larrabee was appointed, and now has charge of the work. Mr. Larrabee is an honest, careful worker, and I believe will do very satisfactory work. In case he should not prove to be the right man, he will be first to learn the fact, and will quickly resign in favor of another, though I feel sure there will be no call for such action.

Mr. Elwood thinks that Mr. Larrabee's time is too much occupied in caring for the large apiary here. The apiary here is not large—no larger, I think, than a person who has no other duties would wish. Indeed, I know by experience that a person who experiments with only fifteen or twenty colonies will be criticised from this very fact, though I think with small reason. Besides, if Mr. Larrabee feels that he has too many colonies he can reduce the size of the apiary, I am sure. I think the size would be left entirely to him. There is another advantage here. Mr. Larrabee can secure help to care for the apiary at any time, as well as aid in scientific lines. The complaint by the authorities at Washington is, that they have little money. Why, then, ask them to buy a plant when they have one at their disposal?

Mr. Elwood suggests that the work be taken from Dr. Riley's hands. Even granting that this be desirable, it is not practical. We surely can not get a separate Division for apiculture now. I think, though, that Dr. Riley will leave the work almost if not wholly with the apiarist. I think, too, that it would be impossible to secure an apiary at Washington. Is it not better to hold on to what we have, and not grasp for more and lose all? The other advantages so well presented by Mr. Elwood are secured here as well as they would be at Washington.

I believe Mr. Larrabee is the right man in the right place. I believe that, if he is sustained by the government and by bee-keepers, he will give far more than value received for the money spent. I believe that, if the bee-keepers ask this, he will be kept at work for a series of years and will achieve large results. Is it not worth while for the bee-keepers all over the country to write to the Secretary of Agriculture and ask this favor, or, better, *right?* I have no doubt in my own mind of the wisdom of this course. If the bee-keeping public agree with me, and act in the matter, there is but little question that Mr. Larrabee's work will be continued, and real substantial good be the result.

Agricultural College, Mich. A. J. COOK.

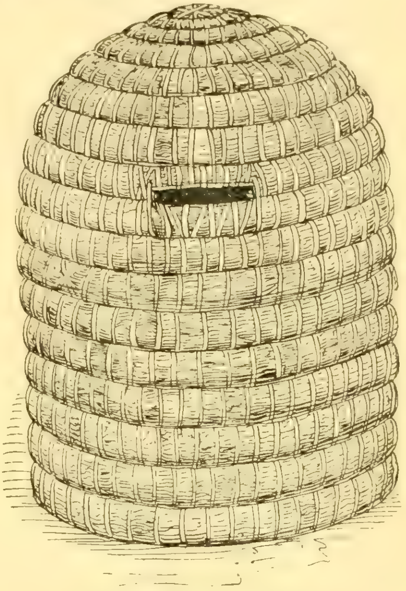
BEE-KEEPING AFTER THE OLD FASHION IN GERMANY.

C. J. H. GRAVENHORST, OF THE ILLUSTRIERTE BIENENZEITUNG, TELLS WHY THE BEE-KEEPERS OF GERMANY STICK TO THE OLD STRAW SKEP IN PREFERENCE TO THE MOVABLE-FRAME HIVES.

Of course, it will seem strange to many readers of GLEANINGS, to know that, in one part of North Germany, the old straw skep is to-day the hive most in use; that thousands of pounds of honey are raised in it, and thousands of men earn the greater part of their livelihood by bee-keeping after the old fashion. The movable-comb hive is used there by only a few bee-keepers. It is equally strange that there is not a part of Germany where there is not a bee-keepers' association that did not, besides the fourteen German bee-journals, recommend the movable-comb hive. If you were to travel through North Germany, especially the province of Hannover, the dukedom of Brunswick, etc., then you would see in *every* village or town two, three, or more apiaries, and all run only for profit and not for pleasure.

Why is it that the owners, I might say without any exception, stick to their old hives, their management of bees, and not use the movable-comb hive, and look upon the modern hive as a plaything, like Monsieur Hamet, the late editor of the *Apiculteur* at Paris?

Answering this question, I must say: 1. The hive they use is unsurpassed by any other in regard to wintering bees outdoors, preserving the colonies in the spring and through the season; 2. The hive is very cheap, and can be made by every one; 3. Bee-keepers have learned from infancy to handle their bees in their old hives, consequently they are very familiar with it; have all tricks of management at their fingers' ends, so that they use it without failure; 4. It is the best hive for moving bees; 5. The management of bees in this hive takes the least time and labor, so that the bee-keepers are able to sell a pound of honey much cheaper than the movable-comb-hive men. Let me say another word in praise of that right honorable old straw skep that has done much service for the bee-keeping world in the past time, and will do it further, at least in North Germany. If you go over Europe you will meet with this hive in every country, from sunny France to the frozen shores of Siberia; and almost everywhere the bees thrive in it, even without any care of men. Who in the civilized world is not acquainted with at least its picture? You not only find it printed in every book that treats on bees, honey, and wax, but in many other books—yea, on labels and signboards as a symbol.

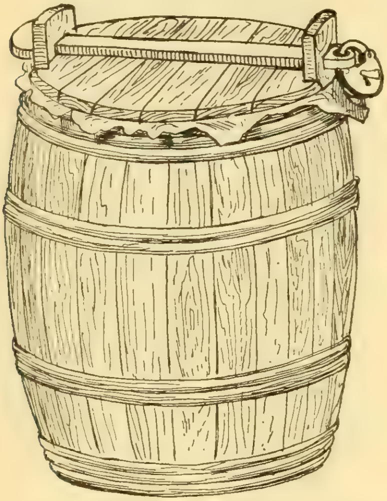


THE STRAW SKEP OF GERMANY.

The cut above shows the reader the hive our German "fixists" have in use. As he will see, it is dome-shaped, nearly 18 inches high, and has a diameter of 10 or more inches. The top has no hole for a super, as these are not in use. If it is necessary to give the bees more room, then the bee-keeper will put one or two straw rings *under* the hive, and fasten these to the hive with three iron clamps. The entrance is near the head, and this has, by the construction of this hive, many advantages, but it would be of danger for the bees by any movable-comb hive. For want of space I can not explain this; but should the reader understand German, then he may find a full explanation of this and many other things in my bee-book, "Der Praktische Imker." To give the combs in this hive the necessary stability, eight or ten wooden sticks are pushed through the hive from the outside, running parallel with the entrance. Two or three starters are to be pinched between the top and the first set of sticks. These starters, mostly made of fresh and mashed drone comb, run *across* the sticks from front to rear, so that the combs and spaces between the combs run against the entrance.

Every bee-keeper in North Germany who uses this straw skep goes with 50 to 100 and more colonies into his winter quarters. In his house yard he has selected a protected place, and there built a house-apiary. In this he places hives on low shelves, one above the other, so that they are facing southeast. He knows very well, that not in all, but in some winters, it is of great benefit for his bees to have a cleansing flight in the sun, while there is in the shade too low a temperature for the bees to have a flight without much loss.

The bee-keepers of North Germany keep their bees in just the same way as their forefathers did centuries before; and up to this day they do not use comb foundation nor the extractor; and no one can convince them that one can feed bees with sugar successfully. They never do this; they feed only honey. There is not one of them who has not in his house a dry honey-room in which one may find three to six barrels, every one containing 300 pounds of honey, from one to three and more years old. They call it "futterhonig;" that is, honey for feeding. These barrels are made from old oak wood, and never leak if the wood is put together when very dry. Under the cover of the barrel is placed a cloth to prevent the intrusion of dust.


A RECEPTACLE IN WHICH THE GERMANS STORE THEIR BROKEN COMB HONEY.

From 50 colonies, spring count, the honey crop will be, in a very good year, 12½ such barrels, each of 300 pounds of honey, and 50 pounds of wax. They will get $500 for the honey and $12 for the wax.

Their chances for getting such a honey crop are, so far as I can see, not so good as in New York State. However, the bee-keepers are not satisfied with the honey-flow at home, and therefore they move their bees one, two, or three times in a season, ten, twenty, or forty miles from their home, when the honey sources at home are cut off or do not flow fast. To understand this, I must say that we have in Germany three regions for bee-pasture: 1. Such as where bees have very good honey pasturage in the spring till the beginning of July or August; 2. Those where bees find scarcely any food, but live from hand to mouth from early in the spring till the beginning of July or August, when buckwheat and the *Erica vulgaris* will come in bloom; 3. Last, there are in Germany a few scattered regions where bees have good pasturage from spring to autumn.

The bee-keepers of this last region have only house-apiaries, and do not move their bees, while the occupants of the two other regions must wander if they wish to get a crop that pays well. Therefore the occupants of the second region, in North Germany, move their bees early in the spring to the first region till July or August, when they go home, because buckwheat and heather (erica) will come in bloom. Many of the inhabitants of this region who keep bees in straw skeps will also wander to buckwheat or heather.

In the third region there prevails the movable-comb hive; also in South and Central Germany; but in the second it has not found a foothold.

In another article I will tell the reader how the bee-keepers in this region manage their bees in their old dome-shaped straw hive in a very rational way to get a honey crop that pays well. C. J. H. GRAVENHORST.

Wilsnack, Germany.

To be continued.

[All of this is exceedingly interesting to those of us who have been advocating, during the last twelve months, the handling of hives more and frames less, since it shows that the bee-keepers of Germany do make money with the old straw skep; and while we would not for a moment advocate in our own country such methods of keeping bees, we do say that bee-keepers having frame hives may learn a lesson. The point is just here: While movable frames give us advantages that we can not afford to dispense with, it is not at all necessary that we should handle the frames so excessively as is the practice of many bee-keepers, and thus absorb what otherwise would be profit.]

FOUL BROOD IN AND AROUND YORK, NEBRASKA.

ANOTHER STATEMENT OF THE CASE.

In GLEANINGS for March 15, page 205, I saw an article from the pen of Mr. L. D. Stilson, the editor of the Nebraska *Bee-keeper*, in which he attempts to prove that, because Mr. Todd does not belong to any society, and purchases his supplies where he can do the best, and has kept bees only two years, his statements are injurious, and intended to create a false impression of things here, and injure the trade of those engaged in business here which he does not patronize. Mr. Todd has never had any burning desire to attend society meetings, but may attend in the near future. He makes his own hives and frames, and buys other kee-keeping supplies of A. I. Root. He never picked up and used any old combs, as was intimated by Mr. L. D. Stilson, but buried them as soon as found. He is an invalid, largely dependent on his bees for support; and by close study he has made himself very proficient in his chosen calling. He knows foul brood well, having made it a study for the last two years, first having satisfied himself that it was foul brood by sending two samples to Prof. Cook, who pronounced them genuine foul brood.

R. R. Ryon, Ex-inspector of Bees for York County, Neb., and Ex-president of York County Bee-keepers' Association of the State of Nebraska, and now of Salem, Ore., says:

"I am satisfied that foul brood did prevail in *many* parts of York, and especially in North York. I have ample evidence that the south part of York Co., and the north part of Fillmore Co., have *many* cases of foul brood in its worst form. Mr. ——, of York, admitted that his bees had died with the disease. Mr. —— also lost his and left his hives and fixtures lying around, whereupon I notified him to clean them up under penalty of the law. R. R. RYON."

If the readers of GLEANINGS have any doubt about the existence of foul brood, these extracts from the Nebraska *Bee-keeper* ought to convince them of its existence; also that Mr. Todd's statements are true, and not made through a desire to injure any one's business. In Vol. I., No. 2, page 7, Mr. Stilson says, "Foul brood is well scattered all over Nebraska, having been brought from the Eastern States."

In Vol. I., No. 3, page 2, he says, "Hardly was our last month's edition off the press before we heard a cry of horror that we should have insinuated that the disease known as foul brood was in Nebraska; and, more, that we should say that it was well scattered over the State; that we are creating a false and useless alarm among the bee-keepers of the State, which would be an injury to us in the future. . . . . The wide-awake apiarian can never hope to keep his own hives pure while his careless neighbor is allowed to throw the refuse from his old hives on the ground to swelter and rot in the summer sun."

I shall make no comments on the above statements, but allow the readers of GLEANINGS to draw their conclusions, only adding that, of 22 small apiaries within three miles of this city, I know of only one that is free from the disease. Mr. R. E. Leech and myself at one time had more bees than the rest of the county; now he has none and I have one, and that has foul brood. Mr. Leech stated at our society meeting in March that he "went out of the business on account of the wide prevalence of foul brood." I went out and continue to stay out for the same reason. E. A. BUTTERFIELD.

York, Neb., April 25.

[We have suppressed the names of the bee-keepers mentioned by Inspector Ryon, on the printed page, because by this time they have no doubt cleaned things up. If they have not, they should be summarily dealt with by the law. We are sorry that this matter has assumed the nature of an unpleasant controversy. However, we hope, now that the attention of the bee-keepers of the whole country has been called to it, the disease will be speedily stamped out by the resident bee-keepers if it is not well under way. We can not believe either party in the discussion intentionally misrepresented, and we hope it will not be necessary to "talk it out" any further.]

GRADING HONEY.

ANOTHER VIEW.

[This, as it will be observed, was sent to Dr. Miller. As it contains so much of value he sent it to us with the suggestion that we publish it.]

Dr. C. C. Miller:—Wishing, like yourself, to see some practical way of grading honey settled upon, I can perhaps give you a pointer on the subject. Three things must be taken into consideration. 1. It must accord with the present market for honey; 2. It must be suited for the whole United States; 3. It must be simple. The honey market knows only two kinds—white and dark; and it is on this basis that we must grade. My plan is, to keep them entirely separate, grade the white and dark by themselves, and our troubles are at an end. I would suggest the following grades:

No. 1 white.—Pure white, free from travel-stain or propolis; all cells capped except the outside row; no honey protruding beyond the section; sections well filled.

No. 2 white.—Pure white, slightly travel-stained, all cells capped except the outside row; may be bulging on one side.

No. 3 white.—I think honey with a slight shade of dark should be admitted to this grade. It would, of course, take all that would not go in Nos. 1 and 2.

No. 1 dark.—Of uniform color, free from travel-stain or propolis, all cells capped except outside row; no honey protruding beyond the section; sections well filled.

Nos. 2 and 3 dark.—Could be graded about the same way. This would give the dark honey an equal chance with the light, and the price would be governed by the demand.

Saratoga, Wis. THOMAS ELLIOTT.

HOW TO SEE BEES WHEN THEY SWARM.

R. WILKIN, ONE OF THE PIONEER CALIFORNIA BEE-KEEPERS, TELLS HOW 'TIS DONE.

In a large apiary, where the extreme limits are four or five hundred feet apart, as is the case with mine, it is difficult to readily recognize a bee on the wing; yet they can be seen further than that where optical conditions are favorable; but if most unfavorable, they can not be readily recognized, even ten feet away. Where the bee-keeper does not wish to spend all his time watching for swarms, and the peculiar hum of the swarm is too far away to be heard distinctly, it is economy to have things so arranged that swarms may be recognized from the point where the bee-keeper is most at work, and also from one extreme of the apiary to the other. A strong contrast with the color of the bee seems necessary to see it most distinctly.

At one of my apiaries, as I stood looking east out of the door of my house, the mountain rising abruptly four hundred feet in front of me, the apiary lying between me and the rising earth, as the sun arose, not shining on me or the hillside, but lighting up every thing between us, every bee became visible as it arose from its hive, circling, gliding, darting, or gracefully wending its way far up the mountainside. The eye could settle on any bee and follow it hundreds of feet away, the vibrations of the wings, even, being quite distinct, giving the appearance of a thread of raveled stocking yarn; even silvery spider-threads, like ropes, long and short, perpendicular, horizontal, or curved, could be seen wafted gracefully amidst this scene of insect-life before me. But every one can not have a mountain at his command, and must substitute a makeshift.

Swarms are best seen when looking in the direction of the sun from 9 to 3 o'clock, as the shadows of trees and other objects are seen most in that direction. I find it very serviceable to have a thicket of trees or sage-brush just outside the apiary, especially on the southeast side, and making their shadows close above the tops of the hives. I help this by clearing away underbrush, or piling limbs and leaves in such a way as to shut out the sun. I sometimes set boxes or empty hives on the tops of the hives on the outer ends of the rows, with the open side next to me, so as to make a dark shadow on the inside next to me. This helps some when there is nothing better.

Last season I purchased a web of black muslin and cut it into pieces from one to three yards long, and placed them for backgrounds just outside the apiary at the sides most needing them, and just high enough to be plainly seen above the tops of the hives. I held them in place by fastening them to stakes five or six feet long driven into the ground. I find this a very serviceable device. Visitors ask what the black cloths stretched around the apiary mean. I tell them that, having lost many bees last winter, I drape my apiary as a badge of mourning. When swarming is over I roll them up to keep for other years.

Who can throw light on this subject? An optician or artist who studies lights and shades ought to be able to help us save our swarms. The blue sky can often be utilized as a background to help see bees. The eyes of the observer himself are best if well shaded so as to see sharply, as any one who has been in the bottom of a deep well knows that, by looking up, even in midday, stars can be seen in the heavens. R. Wilkin.

Ventura, Cal., April 18.

[In photography we always seek to get what is called "good contrast;" that is, we try to group persons and things of dissimilar colors in such a way as to show sharp contrasts. For dark objects we prefer light backgrounds, and *vice versa*. This brings out the picture strong and clear. In practice you have endeavored to secure the same results in nature.]

BEES AT THE FOOT OF THE ROCKIES.

HOW COLORADO AS A HONEY COUNTRY DIFFERS FROM THE EASTERN STATES.

To a bee-keeper in this region many of the instructions and suggestions found in the books and periodicals of the States east of the Mississippi are entirely unsuited. They are generally based on the well-marked honey seasons of white clover and basswood. But here we have neither of these. I have never seen a basswood-tree this side of the Mississippi River except a few small ones planted for ornament. As to white clover, I know of none in the State except a little that I have sown along the ditches, amounting to probably less than half an acre all told. So all instructions in regard to readiness for the white-clover season and for manipulations during the basswood flow are thrown away on us.

Our early pollen is derived from maple, willow, and cottonwood. The bees seem to collect some honey from these sources also, as they are carrying in more or less at present, and there appears to be no other source from which it can be obtained. Our main honey sources are, fruit-blossom, alfalfa, and cleome, or Rocky Mountain bee-plant. In this vicinity are hundreds of acres of orchards and small fruit-ranches. These furnish rich pasturage for our bees early in the season. Unfortunately a severe freeze in March killed much of our fruit in the bud, so we shall not have the profusion of bloom that we usually have; but we expect enough to build up our bees into good working trim for the alfalfa harvest, which begins in June and continues till frost. There is a large amount of this within bee-range of my place; but, being raised only for hay, it is generally cut as soon as it is in full bloom, so we do not get the benefit in honey from it that we should if it were raised for seed. But it generally happens that some of it is in bloom within reach of my bees all of the season. Of cleome there are hundreds of acres on waste grounds and on roadsides up and down the river, within reach of my bees. This begins to bloom in July, and stays in good condition about two months. I have never known this to fail to produce abundance of nectar. The honey from both this and alfalfa is of excellent grade, being light-colored and fine-flavored.

Bees have come through the winter in fine condition. The winter problem seems to be a secondary matter here. The past winter is the first that I have tried to carry bees through. But men who have kept bees for many years tell me they always go through the winters safely on their stands without any special preparation provided they have plenty of stores.

I have adopted the New Heddon hive; and from one year's experience with it I think it just "beats the world." L. J. Templin.

Canyon City, Colo., April 25.

J. F. McINTYRE IN HIS APIARY.

PLAN OF ARRANGING HIVES IN CALIFORNIA; A CONVENIENT HONEY-CART, ETC.

The engraving shows a near view of the south half of the apiary, taken from the honey-house door. The honey-cart in the foreground is one of the most satisfactory implements which I use in connection with the bee-business. I have two of them, and they are both in constant use during the extracting season. While one is being filled in the apiary, the other is emptied in the honey-house. The wheels are 30-inch hose-cart wheels, and cost here $4.00 per pair. The boxes which hold the combs are made of half-inch lumber. They are 12 inches deep, and in the bottom of each box is a dripping-pan made of tin, 3 inches deep and full size of the inside of the box, which catches all the honey that drips from the combs. I find it much more convenient to have the combs run lengthwise, as shown in the engraving, than across the cart. You can lift a comb from the cart and place it in the super, or from the super and place it in the cart, without moving your feet. That little tin box in front of the large ones is used to hold water. I always brush the bees from the combs with a wet brush; it does not irritate the bees so much as a dry one, nor get sticky with honey.

I was just opening a hive in the usual way, and watching the bees run down from the smoke, when the photographer snapped his camera, with the remark, "I caught you at work that time." For the last three or four years I have used an extra large smoker, and burn straw altogether for fuel. If the straw is packed in tight it will burn a long time; and it makes a cold white smoke which is just the thing to quiet the bees.

The lines in this apiary are arranged in straight rows six feet apart, with a five-foot alley between the backs for the honey-cart to run up and down, and 12 feet clear between the fronts with a row of grapevines in the middle. Most of the large apiaries in this county are arranged this way. You can get the honey-cart up close to the back of the hive where it is in the most convenient position to load. The Miller plan is better for queen-rearing, but not for producing extracted honey. Almost any plan will do for a small apiary; but when the apiary covers over an acre of ground, the bees will get more or less demoralized with any plan.

You will see a number-stake at the back corner of a hive just above the honey-cart. It reads 19 K. That means K row, No. 19. The rows are lettered from A to V, and the hives numbered from 1 to 23. By having a book indexed on the margin I can open it at any row; and as all the numbers are on that page, I can see the record of any hive in about two seconds.

The rows run east and west, and the hives face north and south. I have come to the conclusion that bees prefer their entrance on the south side, and do a little better in the rows facing south. The plan of my apiary on page 775, last year's Gleanings, is not this apiary, but an out-apiary, and the engraving on page 772 is looking north; on page 773, south. This engraving is looking southwest.

THAT COWAN EXTRACTOR.

Before I close I wish to say a few words for that new Cowan extractor. I felt enthusiastic the moment I opened Gleanings and saw the cut; and the only thing that prevented me from sitting right down and expressing my admiration was the fact that I had already recommended and indorsed this principle. When I showed the cut to my wife she said, "That is

J. F. M'INTYRE AT WORK IN HIS APIARY.

something like the thing." If your Novice extractor breaks too many combs, just buy a new Cowan; and, my word for it, you will be happy.

J. F. MCINTYRE.

Fillmore, Cal., March 5, 1891.

[We are glad the artist caught you when you didn't know it. Your pose is more natural and easy. We notice you are using the Bingham smoker. You needn't tell our customers, but somehow, when the bees are cross, our boys have a preference for the Bingham. We have no doubt but that a wet brush irritates less than a dry one. Say, did you ever try the Coggshall brush for the purpose?—In regard to the Cowan extractor, you are about right in your estimate of it. See what Frank McNay says of it below.]

THE COWAN REVERSIBLE HONEY-EXTRACTOR.

STRONG TESTIMONY IN ITS FAVOR FROM ONE OF THE MOST EXTENSIVE EXTRACTED PRODUCERS IN THE WORLD.

I received the new Cowan reversible extractor about a week ago; and although I was convinced as soon as I examined it that it is practically all right, yet I decided to wait and try it before reporting. I can now say, that, in regard to convenience, it is all that can be desired; and although the combs may be reversed without stopping, yet I would not advise this for general practice, for I find that the gearing is so strong that it can be stopped and started instantly, and can really be done quicker than on the slowing-up plan. I remember using some very emphatic words to you last winter in regard to the necessity of greater strength in extractors, and I am now convinced that you heard, even if you were a little deaf at the time; for after carefully examining and trying the Cowan extractor, I have failed to find a weak part, and I do not hesitate to say that it is the best extractor made, both in regard to convenience and durability, and I shall replace all of my five machines with the Cowan as soon as possible. FRANK MCNAY.

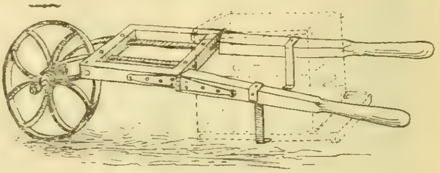
Mauston, Wis., May 6, 1892.

[Before introducing the Cowan to the public we talked and corresponded with some of the largest and most practical bee-keepers in the world, friend McNay among the number. We were thus posted as to all the desirable points in an extractor, and with this knowledge in possession we set the best talent of the Home of the Honey-bees at work constructing the machine, and as now constructed we have reason to think it will please all, as it has friend McNay. In strength of material it surpasses every thing we ever turned out before in the way of an extractor.]

A WHEELBARROW FOR CARRYING HIVES.

HOW TO MAKE IT.

I inclose a sketch of a hive-carrier that I made and have had in use for two years with perfect success. The expense is almost nothing, and can be made in two hours. The wheel is one taken from an old garden-drill. It is eighteen inches high. The springs running back from it are mortised through the end-bars of the frame, and are made out of one leaf of a Champion spring, and bolted at each mortise. The frame and handles are made of 2x2-inch oak, and the sides are mortised on to the ends. The handles are fastened to the frame by strap hinges so that thay can be swung out in grasping the hive, as brought down over the top. The lifting-springs are made of the same as the ones going to the wheel. They should be about 9 inches long; but for a short man a little shorter, so that the front of the hive will not touch the ground in wheeling. These springs should be screwed to the handles about one inch back of the middle of the hive, so that the hive will tilt forward and be steadied against the end-bar of the carrier when the arms are swung in. The springs should also be sprung inward about 2 inches so they will press tightly against the bottom when the handles are brought up against the hive.



KNIGHT'S HIVE WHEELBARROW.

The length of the frame should be eighteen inches, and the inside measurement between the handles the width of the hive, with about an inch to spare, so as not to rub the paint off the hive.

With this carrier you can pick a hive off from a stand or from the ground, run into or out of a cellar, and set it down on a stand properly, as you can see three sides of your hive while running, and the swinging handles do not bother in running. When empty, the hinges should be on the outside, so that, when the handles are straight, they will be perfectly stiff.

Detroit, Mich. BRUCE KNIGHT.

CELLAR WINTERING.

WHY I CARRY MY BEES OUT OF THE CELLAR EARLIER THAN MOST FOLKS DO.

In the first place we will see a little about the way they are in the cellar. We have all of our brood hives with fast bottoms, but they can be made loose by taking out two screws. Our entrances are so that they go clear across the hive, but can be closed, or partly closed, in one second. When we carry our bees into the cellar (about Nov. 15 to 20) we close our hives, set two or three hives on a carrier, and, with one man ahead and one behind, walk into the cellar with our load. We have a platform in the cellar 8 inches high, and as wide as the hives are long. The platform being level, we place a 2x2 joist on the back edge of the platform. We now take the hives from our carrier, and set one row on the platform, the whole length, with the back end of the hives resting on the 2x2 joist, so the hives will all stand pitching forward. This will greatly aid the bees in keeping the bottom-boards clean, which they will generally do. If a few fail, then we help them clear the entrance with a wire hook. When the first row is placed all right, we either have boards sawed 1½ inches longer than the hives are high, placed between the hives, then set up endwise so we can put a board on them for a shelf for another row of hives to sit on, or we sometimes just place a piece of joist the length of our hive on the top of three hives, say on each end hive, and the middle hive in the row, and lay the board shelf on them, and so on until we have four tiers high.

We have our bees in the cellar so we can walk in the alleys and get to the front of each hive and look after them as we think they need it. We experiment some every year with a few different kinds of hives and different ways of management.

One very important thing with those who are keeping a good many swarms is, to have the bottoms fast, and the entrance convenient to close, and so be sure a bee can not get out while carrying in and out; then we can use cheap help, and they like to do it.

I find that most bee-keepers say, "Keep the bees in the cellar until natural pollen is ready for them." With the hive that I use, I must differ with them for this reason: Bees will remain quiet, and winter well in the cellar for about four months; and if kept in five months, more will die or get weak—the last month, more than all the first four months. I have set bees out at all times from Feb. 1 to May 7. This is too early and too late. But any time after the 15th of March, when the weather is fine, so the bees can get a good cleansing flight, and if no snow is on the ground, is the time to take bees out of the cellar. But, oh! we want a day when the bees will not waste much in their first flight. If we knew the weather would be fine in a day or two after, it would be best to carry them out at night, or on a cool day (we do so with our out-yards, if the day is such when we get there), then they do not fly until it is warm enough. After our bees have had one or two flights I'd rather have it cool, to keep the old bees in the hives.

Now, I think my bees are more healthy than they would have been if I had kept them in one month longer; and they now begin to rear brood, and the old bees stay at home and keep the brood warm, and live until the young bees begin to take their place.

I always get some rye ground just as fine as our miller can grind it, and leave the bran in with the flour; and if we have a few warm days, give the bees some of this. Place it in a shallow box two feet square, near the yard, and the bees will have work close at home; and this, too, will stimulate them to breeding. But we shall be likely to have considerable cold weather when the old bees will be like a sitting hen—keeping their eggs warm. Now, when natural pollen comes, say April 8, the young bees will begin to hatch, and the old ones will begin to work very hard, and soon die; but the young bees will hatch out as fast as the old ones die, and take their place; and this prevents spring dwindling (as it is called), and the old bees have been worth much in rearing this brood. If we wait until April 8 before we set our bees out, then the bees start right off hard at work, pellmell, and, being weaker, too, by their longer confinement, die off fast, and will be able to care for but a small amount of brood, and spring dwindling is the result; and by May 8 the bees will not be as plentiful in the hives as they were when set out; and then comes the trouble of changing combs, and much fussing work to get the bees ready for the honey harvest. But those set out in time to have the young bees coming on to take the place of the old ones that die off fast when no pollen comes, will be ahead, and keep so, without all of this fussing; and another thing, we are apt to have a few swarms that are weak, and liable to get robbed if not watched when carried out early; and after their first flight, look for and find out whether any are poor; and if so, carry those back into the cellar, and leave them in until natural pollen comes; then set them out and care for them as they need. They will not be as liable to get robbed now, but these few should be put on from three to five frames, just what they can protect and care for. If better swarms should lose a queen, unite with one of these.

I will say, that the most of my hives are wide enough for ten frames (11¼ deep x 15⅛ long); but I use a division-board the size of my frame, on the outside of my combs, so but 8 frames are used much of the time. I like this. The heat and cold do not affect the bees as much. I like the bodies of my hives painted red and the caps white. I use a cap to set over my section crates. I think they pay. They are good for a good many reasons, such as shade to keep off rain, heat, and cold; and we use thin sides to our section crates, 14 one-pound sections to the crate, and two of these crates just cover a hive.

I have been experimenting some with a hive with the rim nailed around 5½ inches from the top, and the cap set over the hive. The cap is 8 inches deep. This gives 2½ inches of chamber over the frames. Put a large quilt on the hive; one thickness of hop baling is good, or another on top of that, or forest-leaves, or chaff on top of quilt, if you wish. Then put the cap on over, and set one hive on top of the other in the cellar. The cap on the front side, one inch down, has a hole cut through for a handle 1x4 inches, covered with wire cloth on the inside. These, too, have wintered well.

In moving bees from yard to yard, take off the quilts and drive a nail through the cap into the hive (one in each end will do), and the wire cloth in the cap will give air enough; close the entrance, and we are ready to move.

Middleburgh, N. Y. N. D. WEST.

[Friend W. makes some good points in favor of taking bees out of the cellar early; but in all this we should consider the matter of locality. This spring we kept our bees in the cellar considerably later than usual, for experiment; and we found that we might better have taken them out two or three weeks before we did. Our outdoor colonies are about a month ahead in brood-rearing. Whether or no these cellared colonies will catch up, remains to be proven. Dr. Miller has recommended taking bees out as soon as maples come into bloom; and for him we have no doubt that this is the better time, because his locality is very cold compared with that of most other bee-keepers.

We believe Mr. West's plan of putting bees into the cellar is a good one. If we were sure we could winter our bees in the cellar without removing the hive-bottoms, but leaving plenty of upward ventilation, we would make them all fast; because convenience in moving bees to out-yards, and in and out of the cellar, and carrying them around the apiary when they are in hives with fast bottoms is no small item. If upward ventilation in the cellar will permit of this, and yet give us good results, it would be worth our giving it a little consideration. Last winter we put into the cellar colonies having sealed covers and those having absorbing cushions. The former had their bottoms removed, and the latter had bottoms that were nailed fast. This spring we could detect no particular difference in the wintering of either set. "But, how about this sealed-cover idea that you have been advocating all along?" some one will ask. If the reader will refer to what we have said, he will see that our remarks applied to outdoor wintering. The purpose of this sealed cover is to retain all the warmth of the cluster; and this is very essential for *outdoor* wintering, for then we have no heat to spare by letting it escape through the top of the hive. But in the *cellar* the conditions are reversed. The great trouble with the most of us is not to keep the bees *warm* enough, but *cool* enough; therefore, if we allow the heat to escape to a certain extent through the top of the hive, we are thus enabled to maintain a higher temperature in the cellar itself. It is the high temperature in the cellar that causes the bees in them to come out and die. The point we are getting at is this: If we can not successfully reduce the temperature in the cellar, we can, perhaps, reduce it in the hives themselves by allowing some of the surplus heat to escape.

Now, please understand, dear readers, that we have not committed ourselves to either idea. We have offered these suggestions only as lines of experiment for another season. A great many, like H. R. Boardman, have success with sealed covers and open bottom: Mr. West winters successfully with a fast bottom; but with upward ventilation.

Since writing the above the following article from R. D. Avery has come to hand. It is right in line with what we have been saying, and the success of the writer is no small argument for upward ventilation in the cellar.]

CELLAR WINTERING.

SUCCESS WITH UPWARD VENTILATION.

I see that there is quite a diversity of opinion as to cellar wintering of bees, as to whether the cellar should be cemented, ventilated, etc. Well; the "Major" and I winter our 400 and odd hives in a cellar, dirt floor—measurements 19x25, and 7 feet high; no ventilation at all. When the hives are taken into the cellar, the tops are left off and the frames covered with burlap to let the moisture escape. We have very little trouble in wintering in this way. If the bees get uneasy and start a roar, we open the cellar door at night; if the temperature is *colder outside* than in the cellar (if it is *warmer outside*, do not open that door) leave it open for a couple of hours, when the chances are that the roar will be silenced. We lost only 2 out of 400 this last winter, managed as above, and have averaged that for many years. We have done away with all sub-earth ventilation, etc. Such things are of no use whatever.

MOVING BEES TO AN OUT-YARD.

Now about the moving of bees to and from out-apiaries. Of course, we have a lot of that to do every spring and fall, and I have just hauled out 220 hives in six days, with a one-horse wagon, making two loads a day, with the thermometer ranging from 70 to 80 degrees. The bees had to be shut up in the hives very early in the morning, before any flew out. As the hive we use has a fast bottom, fixed frames, and a slat for covering the entrance, held in place by a button on the front of the hive, this was a very easy job. These bees were hauled seven miles, part of the road being quite rough, and the last load was not released before four o'clock in the afternoon. What ventilation did we have? None—absolutely none, and none is needed. These bees are good normal colonies, covering about six frames of brood at this date, and most of them on new brood-frames, and not one was broken down, nor any bees smothered. This is not only the experience of one, but of many years in moving bees; and I have no hesitation in saying that bees can be moved at least ten miles, over fairly good roads, in a spring wagon, with the thermometer at 70°, without any ventilation whatever. Rough jolting roads are more to be dreaded than any thing else in moving bees. R. D. Avery.

Independence, Mo., May 4.

[Most bee-keepers for some reason seem to find it necessary to use screen tops for the hives for moving at temperatures from 70 to 80°. The character of the roads probably decides this question to a very large extent. Much jolting causes uneasiness on the part of the bees, and hence more ventilation would be required. As you are perhaps aware, we move without screen tops, but do use wire cloth at the entrances. It can do no harm, and may be quite necessary.]

ABSORBENTS VS. SEALED COVERS.

WOOD WOOL, AND HOW IT WORKS AS AN ABSORBENT.

The subject as per above caption has not been fully discussed, and I beg for space in which to give further results in my experiments of wintering bees on summer stands. In Gleanings for May 15, 1891, page 374, I gave results in a way very satisfactory, of packing with mineral wool, with chaff cushion on top. Chaff can not be regarded as in any sense an absorbent. Its loose texture allows of the free escape of moisture in the form of vapor; but it does not hold this in suspension, except mechanically as it rests in more or less minute drops within the mass of the chaff. One may say this is the effect of any absorbent, which is entirely true; but frequently, on lifting a chaff cushion one is surprised by quite a rain of drops of water, which is never the case with a true absorbent, as will be shown further along.

As packed last winter, my colonies came through with a minimum loss, building up rapidly in the spring, and giving me 12 prime swarms from 18 colonies before May 22d; but I noticed the combs were moldy, as were the dead bees; and the corners of the hives were saturated with water, and, as a consequence, I was not satisfied with the protection afforded to the brood-chamber by the chaff cushions.

My attention was first attracted to absorbent cotton, a material greatly employed in surgical practice; but the cost of this article caused its rejection. I then thought of submitting cheaper substances to the action of chemicals showing an affinity to water, such as sodium hydroxide, etc. This, however, was abandoned, not because it was not feasible, but because something infinitely better was discovered.

In the practice of my profession I had been using, when requiring a cheaper absorbent than prepared cotton, a preparation known as *wood wool*—a superior article for the uses and purposes intended. My application to the importers of this preparation, the Hygienic Wood-wool Co., of New York, stating my object, was met courteously with the assurance of their coöperation, and the wool, in any form, at once placed at my disposal. At my suggestion an order for pads of the material, one inch thick, and of sufficient size to fit closely in a Dovetail super, was placed at their factory in Germany, pads to be covered with coarse cheese-cloth. In addition to this they sent *plates* of compressed wood wool, one inch thick, and the exact size of the inside of the super. These, however, were found unavailable, as they were so stiff they could not be made to fit snugly. Samples of both, at my request, were forwarded to you last November.

At the proper time in the fall, my colonies, 18, were placed in their winter cases, with outside protection of mineral wool, substantially as described in the article in May Gleanings, and a pad of wood wool as protection over the brood-chamber; this last was placed in a super. The top of the hive proper was withdrawn to one side so as to leave a crack of one inch, allowing free circulation between the super and the winter case. Over all was placed the top of the winter case; and as the winter case has strips of wool cloth tacked around the upper edges, when the top is on it is practically air-tight. This arrangement leaves a large air-chamber composed of the space in the super above the wood-wool pad and the space in the winter case above the packing. The advantage of this will be readily apparent, as it allows the excess of moisture to be absorbed by the unpainted sides of the packing-cases, as it is carried over in the form of vapor, to be condensed as soon as it reaches the colder chamber.

The result has been highly satisfactory, and I can indorse heartily the conclusions reached by C. P. Dadant in March 15th GLEANINGS. It is only a question of the kind and quality of absorbents. It is beyond question, that dampness, or a moist condition of the brood-chamber, is as fatal to the bees as is the same condition to all animal life. Dampness, darkness, and inaction are sure precursors of debility and disease; while light, dryness, and exercise embody health and human happiness.

My bees were confined, without a flight, from Jan. 1 until March 4. On examination I found the hives dry—no moldy combs nor dripping cushions. The pads could be determined *damp;* but no appreciable gain in weight — a fact which was tested, of course. At this writing, April 1, the bees are employing daily flights, and there is absolutely not one pint of dead bees in the whole 18 colonies. This has been proven by thorough examination, and by raking the dead bees from off the bottom-board. There are, indeed, some colonies that seem as strong as when put into winter quarters.

The cost of this material for pads may deter bee-keepers from employing it. This objection was made by the writer to the company, who met it by the declaration of finding means to obviate it. I should regard it as cheap at the price, should it save one colony in fifty. Given winter cases, mineral wool for outside packing, and a pad of the incomparable wood wool, and you have solved the question of wintering as well as springing of bees—the latter most to be dreaded because of the moisture-laden winds—the general humidity of which is certainly the cause of spring dwindling. I have in no way exaggerated the benefits of proper packing and proper absorbents. My losses have, after five years of bee-keeping, reached a minimum—in fact, are *nil*. For this reason I shall most certainly employ absorbents in the future, and pin my trust to wood-wool pads.

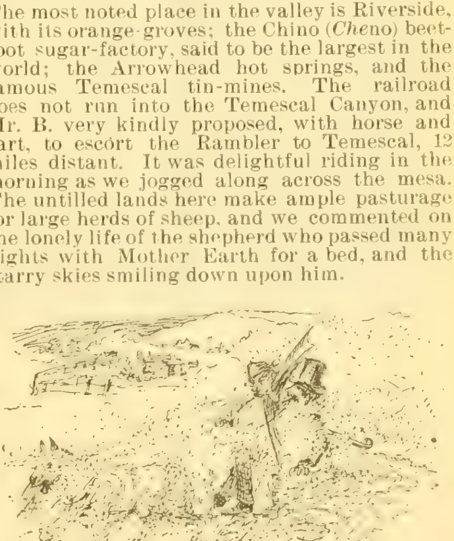
Connellsville, Pa., Apr. 1. J. B. ENOS, M. D.

[The advocates of sealed covers or sealed tops claim that the moisture in the hive is not the product of a normal or natural condition. It is argued, that, when the top of the hive is sealed and the same covered with good packing material, little or no moisture will be precipitated, because the heated air is retained until the surplus finds exit at the entrance below. Moisture is generally the result of a cold surface coming in contact with a warm atmosphere; as, for example, a pitcher of ice water on a hot summer day. Warm or heated air will gradually pass through a porous substance; and when this air gets near the top of the absorbing material, it encounters a colder temperature; and the result is, that the moisture is precipitated near the top of the cushion. Warm air still coming in, it comes in contact with the moist layer of packing material near the top, and that moist layer is made deeper. In this way the dampness gradually permeates the whole cushion. Now, a wet cushion is one of the worst things to cover a colony of bees. We have seen these absorbing cushions frozen solid with the moisture in them clear to the bees; and in that condition they were but little if any better than cakes of ice. Now, the theory of the sealed cover is, that no warm air is allowed to escape; and hence if warm air does not get into the packing material above (where it can not with a sealed cover), there is no chance for the precipitation of moisture in the packing, and hence this packing is always kept dry. Perhaps by using enough packing material, or that of good quality, we may dispense with the sealed cover, and at the same time largely prevent the undue precipitation of moisture; but by using a sealed cover, a very little packing will answer, where a large amount would be necessary otherwise. We received the samples of wood-wool packing, and placed them on our hives. In the line of absorbents they are the best of any thing we have ever tried, and there is no doubt that they would be far superior to chaff. But they have one insurmountable objection; and that is, their expense. If something cheap will answer just as well, it would, of course, be preferable to use the cheaper article; and that cheaper article will probably be a thin board sealed down with about a couple of inches of chaff on the top. Now, please understand that these remarks have reference only to *bees wintered outdoors*. Read our footnote to N. D. West's article preceding, for our ideas on upward ventilation in cellars.]

RAMBLE NO. 59.

IN TEMESCAL CANYON.

From the elevated position of the Bonfoey residence a grand view of the Santa Ana Valley is obtained. On the far side rise the snow-capped San Bernardino Mountains, 30 miles away, and 9000 feet above sea-level. Numerous towns dot the landscape, and all easy of access on the Southern Pacific and Santa Fe Railroads. The most noted place in the valley is Riverside, with its orange-groves; the Chino (*Cheno*) beet-root sugar-factory, said to be the largest in the world; the Arrowhead hot springs, and the famous Temescal tin-mines. The railroad does not run into the Temescal Canyon, and Mr. B. very kindly proposed, with horse and cart, to escort the Rambler to Temescal, 12 miles distant. It was delightful riding in the morning as we jogged along across the mesa. The untilled lands here make ample pasturage for large herds of sheep, and we commented on the lonely life of the shepherd who passed many nights with Mother Earth for a bed, and the starry skies smiling down upon him.



THE RAMBLER AND FRIEND RIDING IN NUMEROUS DUST.

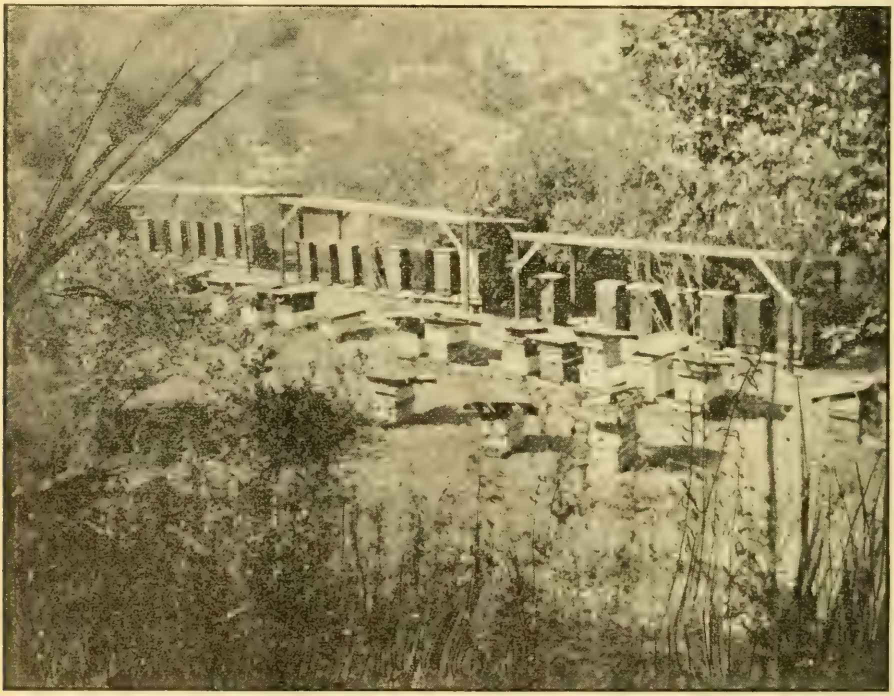
Barley is extensively cultivated, and the ground is in condition to secure not only one crop from one sowing, but two more volunteer crops afterward; but all this land will soon be covered with groves of orange, lemon, and other fruits, and nuts. The land is under the control of a company who are developing a water supply, and settlers are invited, on easy terms, to invest in their lands.

We soon entered the common highway, and then our pleasures were of another sort. This country, during the many months of dry weather, develops something that the land companies' circulars and the booming local papers never mention. It is, the finest and most numerous dust you ever breathed. A horse trotting or even walking in it, where the feet sink into it up to the fetlock, is sure to raise an impenetrable cloud of it. We were obliged to talk through our noses for some miles, and even that was disagreeable. It was a genuine relief to drive off the road and approach a ranch where the pleasures of cooling shade, blooming roses, and refreshing spring water were to be enjoyed. This lovely place had the lovely name of Wild Rose Park, and was managed by two lovely women, Mrs. Wood and her daughter, with the lovely name of Alfiretta. Out beyond the great oak-trees that surrounded the house, and crowded upon a narrow margin of land between the wash and the hillside, was a long array of 130 swarms of bees. The peculiarity of this apiary was the large number of Harbison hives. These hives were a little different from our Sacramento friend's. Instead of using a block to fill up a vacancy, the hive had been increased to such a degree that several crates of sections could be storified, and the hive had a very lengthy appearance; in fact, it is a Long-Idea hive pointing toward the sky. The greater share of the hives in the apiary were of the L. pattern, and the ladies wished to sell all of their Harbisons, and this was strong evidence that they preferred the L. During the past season the yield had been 5000 lbs. of comb honey, and Mrs. Wood had transported it all from the apiary to the honey-house, some 25 rods, on a wheelbarrow.

Miss Alfiretta combines schoolteaching with her other duties; and from the enterprise with which these ladies manage the ranch, it was easy to see that they were thorough business women.

In the house was a fine library and a case of several hundred curios. On the floor was a large lynx skin to which Mrs. Wood called our attention. Herself and daughter had treed the animal in the night, and the hired man was called out with gun, and successfully finished the hunt.

We were loth to get out into the dust again; but the pleasures of Wild Rose Park were not so irresistible but that, after another quaff at the cooling waters, we pursued our journey and soon arrived at the Glen Ivy Hotel and the Temescal hot sulphur springs. We were in just the condition to appreciate the cleansing properties of a bath, and made haste to plunge into the water, warmed to 105 degrees temperature, and medicated by nature in the hidden recesses of the earth. We forgot the dust and discomfort of the ride, and exclaimed, "Oh what a glorious country is this!" The hotel and these baths make the locality a noted resort. The glen from which the hotel takes its name is a beautiful and romantic gorge with a clear stream of water tumbling and foaming over the boulders, making many beautiful waterfalls. Besides the hotel there is a little store, a pretty and commodious schoolhouse, used also for a church and Sunday-school, and half a dozen cottages scattered here and there among the oaks and cottonwoods. This comprises Temescal. The main product of the town is honey, and nearly every resident is interested more or less in its production. There are over 1000 colonies owned in this vicinity.

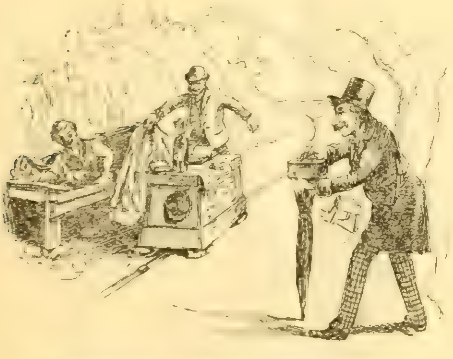


WILD ROSE PARK APIARY.

Mr. Isaiah Anderson is the veteran bee-keeper of the place; and from the appearance of his pleasant home and surroundings, bee-keeping has not been an unprofitable business for him. His apiary was out in the mountains, as were nearly all of the rest. Mr. Dawson and son, the storekeepers, were also largely interested in bees, having apiaries of several hundred colonies. Mr. Hazzard and Mr. Henderson also numbered their stocks by the hundred. Others, as far away as Riverside—20 miles—had bees in this canyon. Mr. George F. Pfeiffer owned a small apiary of 40 colonies on a spur of the mountain overlooking the valley, and the location was the most charming and cosy, for an apiary, we had ever seen. We climbed the hill to make the acquaintance of the owner. The little one-room 10x12 cabin, with adobe floor, a bed in one corner, a stove in another, and doors in the others, was vacant. Mr. P. kept bachelor's hall, and the feminine portion of his household is probably being considered by matchmakers above (I speak only from hearsay, for that's where they say matches are made).

We strolled along the apiary, which followed the contour of the mountain in about the form of a letter S; and as Mr. P.'s 40 acres of land nearly all hung up edgewise on the side of the mountain, the land for the apiary had to be terraced.

We were about to leave the place when the Rambler thought that the terrace further around would reveal something; and as we turned a sharp corner, there we found our friend fast asleep on a lounge fashioned into the side of the mountain, directly under a large oak-tree. There was a rude table in front of him, with books and newspapers on it, and a bottle and glass on the top. The camera was adjusted. Mr. Bonfoey aroused the sleeper; and as soon as he had rubbed his eyes open enough to take in the situation, he shouted, in evident terror, "My gracious! is that the Rambler?" Then it was the Rambler's turn to be surprised at the idea that bee-keepers in the remote places of the earth were expecting to see that camera pointing toward them; and the question arose, "Isn't it about time these rambles came to a close?"



"MY GRACIOUS! IS THAT THE RAMBLER?"

After our various surprises had subsided, Mr. P. exclaimed, "Well, I declare! I am *so* glad you called; and you are really one of us;" and we fell on each other's necks for joy. Mr. P. then offered us some milk out of the aforesaid bottle—the veritable milk of human kindness—but Mr. Bonfoey and I had been drinking sulphur water, and had to refuse on account of the shock that milk and sulphur would give to our organs of gastronomy. When we got around to the cabin my new friend was glad again that I was one of us. And we fell on each other's necks again. Going down the mountain he was overjoyed again, but we omitted the neck operation. Our footing was so insecure that we might have fallen and broken our necks.

We will now let Mr. Bonfoey return to his mountain home, and for a day I am in the hands of Mr. Pfeiffer. We journeyed up through the canyon to Elsinore Lake and the coal-mines, which have recently been developed here. Many apiaries were scattered along up the canyon. As I was one of us, I spent a night in the little cabin. Mr. P. is an excellent cook, and served a breakfast fit for a sovereign *American*. The walls of his cabin were decorated with pictures of all sorts and sizes, from the illustrated papers; and if there was any thing he didn't want around in the way, be it boots, tin cans, newspapers, and such, it was thrown under the bed. It was a rather cool night, and Mr. P. wasn't a very salubrious bed-fellow. He had a way, while lying on his back, of drawing his feet toward his head, and thus making Gothic rafters in the bed. I forgave him, however, for I learned he was a member of the Sunday-school, sang in the choir, and was a member of the Temescal band. He is the fifer. I bade my good friends adieu, and it was a late hour that evening before the railroad was touched. On our way, as the horse was plunging through a wash in the darkness a peculiar shouting like the rolicking voices of schoolboys and of babies crying saluted us from a point not far away. I asked my traveling companion in surprise what those children were celebrating in that lonely place at that hour of night. He laughed aloud, and said, "Those are not children; they are coyotes" (pronounced *kiotes*). Says I, "Tenderfoot again." That was my first experience with them. Since then they have many times saluted the RAMBLER.

THE TWO-MILE THEORY.

DO QUEENS MEET DRONES IN THE SAME APIARY? DRONES CONGREGATING.

In a recent paper I see that my name is mentioned in connection with that of A. I. Root and others as having seen queens mated in the apiary by drones from the same apiary, the writer trying to make out the theory true, that is put forth by some, that different races of bees can be kept as near together as two miles and not intermingle. What A. I. Root has seen, I do not know; but when I witnessed the mating of a queen and drone I was at least two miles from any apiary, and gave the fact in connection with the idea that drones had certain places where they congregated, which I then, as now, believe to be the truth in the matter. If drones congregate in certain places, it would be but natural that the queens should be drawn to these places; and the fact that one queen was known to mate at such a congregation of drones went quite a way with me in leading me to believe that queens in general were so mated. As many are now trying to improve their stock by rearing queens from one strain of bees and their drones from another strain, some writing me that they have two queens which they wish to breed from, raising drones from one and queens from the other, this matter of drones congregating should be of interest to such, and also to all who have any ideas of the improvement of stock along certain lines. If drones do thus congregate, and the queens go to this congregation, it must be apparent to all, that, where there are any bees in the woods, or bees kept by the farmers within the flying distance of drones, our queen will stand a poor chance of mating one of the desired drones, as long as the colonies kept on the let-alone plan will raise ten drones to where our colonies rear one. Where I witnessed the mating of a queen was on a high hill where I was cutting weeds out of a cornfield the fore part of August. On every fine afternoon, from one to three o'clock, there was such a humming in the air overhead that it seemed that a swarm of bees must be going over, and at first I looked for them; but seeing nothing I concluded that it was flies of some kind. One hot day, being tired I lay down to rest; and hearing this swarming noise I shaded my eyes with my hands and looked steadily up into the clear sky. After a little I could see thousands of living creatures shooting in all directions, and finally I saw a dozen or so of these shooting objects give chase after another and overtake it, when the flight was less rapid. Two of them continued circling around, and, nearing the ground, stopped on the tassel of a cornstalk near me. I got up at once; but before I reached the stalk of corn one of them flew away and the other fell to the ground. From what I saw of the one which flew away, I called it a queen honey-bee; and upon picking up the one that fell to the ground, I found it was a dead drone. This solved the mystery of the humming noise; and when I have since heard this same humming in different places I have believed it to be drones in their congregating-places. The fact that this noise is heard only in the early afternoon of pleasant days also proves that drones congregate, or some other insects, for I never heard this noise except at this time of day. If it was made by the worker bees it would be heard in the forenoon as well as in the afternoon.

One other item bearing on this subject is the fact that, prior to the advent of the Italian bee, a man keeping bees for forty years near us never saw aught but the common black or German bee. Another man living four miles from him purchased an Italian queen one year in July, and from this one queen he stocked all of his apiary, some forty colonies, with Italian queens the same year, which, according to Dzierzon, would give Italian drones but hybrid workers, as the purchased queen gave no drones the first year. As this man who stocked his apiary with Italian queens took no pains to restrict the rearing of drones, multitudes of them were reared; and, as a result, fully one-third of the queens reared the next year (being in the old colonies of after-swarms) by our black-bee bee-keeper gave more or less bees with yellow bands, to which he called my attention. Fully one-third of my queens also gave a part yellow bees; and as I was so well pleased with them I was not long in procuring the Italian bees myself.

This fact has always proven to my mind that drones not only congregate, but that bees must be kept at least five miles or more apart to secure the absolutely pure mating of our queens. That this bee-keeper had kept bees for forty years without any of them showing any yellow, would seem to point to the fact that no man could take our black bees in their purity and breed yellow Germans from them.

I see Mr. Alley proposes to give us yellow Punics this year, yet admits that there are apiaries with yellow bees in them only two miles from where he rears these queens. If the Punic bees are an *ebony*-colored bee in their native home, perhaps they would not be so inclined to sport along the yellow line if they were isolated on some island in the large lakes or kept five or more miles from other bees, as they are in the hands of Mr. Alley. Let him place his apiaries from five to ten miles apart, and he will not be criticised so much in putting forth his golden Carniolans and Punics. I heartily wish that drones could be controlled as well as the queens; but so far I see no way of doing it. If we have an inferior queen we can pinch her head off as soon as we see her; but when we come to say to a certainty as regarding the drones our queens are to mate, we are not sure of any thing about it: for should we pinch the heads of all inferior drones (an endless task) we are not sure but that there will be millions of inferior drones at the congregating-place, which will stand an equal chance with our best. From the above I think all will see the folly of claiming two miles as sufficient distance to insure the pure mating of all the queens reared. G. M. Doolittle.

Borodino, N. Y., May 2.

[So far as my experience goes, friend Doolittle is entirely right in what he says in the above. Not only do *drones* thus congregate, but a kind of flying ants may often be seen during pleasant days along in the fall, congregating and mating, as I have already mentioned at length in an article on the subject, given in Gleanings several years ago.] A. I. R.

SELF-HIVERS.

THE STYLE RECOMMENDED BY HENRY ALLEY.

Friend Root:—I promised to send you a description of a self hiver that would hive every swarm that issued through it. I will now attempt to do so.

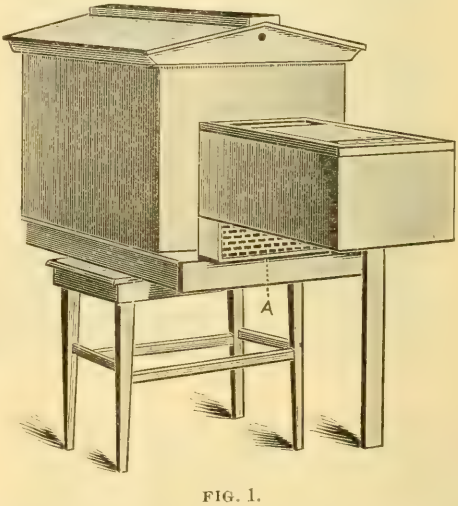


FIG. 1.

Fig. 1 shows the arrangement attached to a Bay State hive. It will be seen that it projects considerably in front of the hive. The bees, to gain access to their home, must pass under the swarmer and enter through the metal, A. Now, this is no serious obstruction to the bees, as they have wings, and it does not in the least seem to inconvenience them in their flight from and to the hive. Of course, it will bother them some for an hour or so when first placed on the hive, the same as the trap does.

Fig. 2 shows the interior of the hiver. It is the same as the drone-trap; in fact, it is nothing else. It is made with a bay-window attachment for the accommodation of a large swarm of bees, while the trap as commonly used will hold but a quart of bees.

Fig. 2 also shows the hiver in broken parts, in order that the interior may be illustrated. The box is resting upon its side, bottom to the front, and showing the tubes through which the queen passes when the swarm issues. Just in front of the tubes will be seen a strip of perforated metal. This is so arranged that it is exactly over the entrance to the hive when the swarmer is in position. Now, when a swarm issues the bees do not rush pellmell up through the metal in the swarmer. The metal is not designed for that purpose. When the bees return from the air after missing their queen, they *then* rush pellmell through the metal to join their queen, which is held in confinement directly over the entrance to their hive by a piece of perforated metal placed diagonally across the end of the box to cover the tubes and confine the queen in a place easily and quickly found by the bees. The bees readily find their queen, and at once enter the box and cluster on the little comb, when they are ready to be hived at the option of the apiarist.

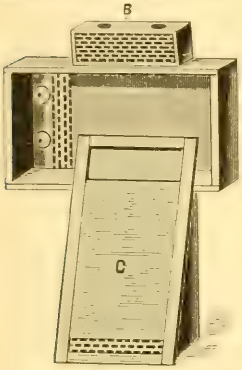


FIG. 2.

Although this swarmer works well, I do not consider it as practical as the one I illustrated in a recent issue of GLEANINGS. Swarmers are as numerous as hives. How many of them are of practical worth?

This swarmer, like the regular queen-trap swarmer, will trap all the drones and keep them out of the way of the entrance; hence it is a safe one to use in an out-apiary, as there is no danger of drones clogging the entrance and smothering the bees in the absence of the beekeeper.

B, in Fig. 2, represents the part placed at the entrance of the hive expected to swarm. C is the cover to the box. HENRY ALLEY.

Wenham, Mass., May, 1892.

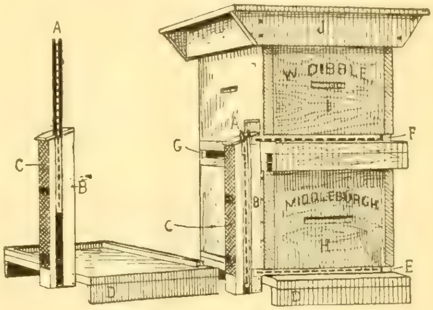
SELF-HIVERS.

WESLEY DIBBLE'S NEW IDEA.

Are self-hivers worth any thing? Do the parties who advertise them, make them, and sell them, deserve to be recognized as truthful men? Can we go to their yards and find these parties using what they advertise? are they succeeding exactly as they tell us they are? If so, let us give these men credit.

What is a perfect success with them would be a total failure with others by a little deviation from their plans. Go slow now, and give these men justice; give them credit for their hard-earned inventions. The above picture will hardly need any description, as it is so plain. It is intended to carry a swarm from the lower to the upper hive. It would be amusing to you to see my museum of traps since 1888 to accomplish the above object. I have succeeded far enough to say, when you visit me you will find these traps in use all through my yards.

One object I have always in view: Give the bee free access to the hive, and don't obstruct the entrance. A trap of any kind in front of the hive is a hindrance to the bees. It affords a shade and place to cluster in front, and in real hot weather they are a nuisance. To illustrate: I have an out-yard supplied with entrance traps. The bees are lying out, covering the traps and fronts of hives. Now, I arrive at this yard at 4 P. M., because I can't get there sooner, and I find from one to ten hives have swarmed during the day. What would be the chances of knowing which one of those hives swarmed? Give us an intelligent answer if you can. Put *me* down as saying the man who succeeds in giving us a successful trap of any kind will give us something besides an entrance trap. We must have a trap when we can at a glance tell where our queens are. We must know instantly, when passing through a yard, which colonies have cast swarms, *without opening a hive.* We haven't any time to spare in digging clusters of bees from in front of hives. We are, for instance, alone with three or four yards to care for, and can't get intelligent help, and the family is large; bread and butter to get: children to school and clothe; and perhaps, as I have, invalid parents to take care of. You see, it is a good deal like the boy digging a woodchuck beside the road on Sunday morning. The minister comes along and says, "My boy, do you expect to get that woodchuck?" "Yes, sir," the boy says; "got to get it; the minister is going to be at our house for dinner, and we have no meat." The minister got woodchuck meat for dinner. We have got to "get there," as did the boy, and get meat for dinner. Now look at the above picture, and I haven't a doubt but you will want to ask some questions. What kind of hive do I use?



THE DIBBLE SELF-HIVER.

Answer. Eight-frame, 9⅛x17⅝, Langstroth exactly. I use the frame reversible by notions of my own. I like them after five years' experience.

Question. How does that trap fasten to the bottom-board?

Answer. A small strip of tin nailed across the trap slides behind one like it nailed on the bottom board. With these, one can put on or take off 100 in half an hour.

Question. Where does the queen get into the trap?

Answer. Cut off the strip on the bottom-board, two inches; slot in the trap to correspond; and also the top of the trap connects with the upper hive in the same way. There are two cones in the trap, so arranged they will not clog. The trap furnishes a cavity for dead drones and bees, bees having free access to the trap by the queen-slide, as shown in the picture.

My next article will be a continuation of self-hivers hived at the side; size of swarms, etc.

WESLEY DIBBLE.

Middleburgh, N. Y., March 7.

BIOGRAPHICAL SKETCH OF FRANCIS A. GEMMILL.

PRESIDENT OF THE ONTARIO BEE-KEEPERS' ASSOCIATION.

The subject of our illustration is now 46 years old, and a Scotch Canadian by birth. His first bee-keeping commenced in 1863, when a lad of only 17 years of age. In 1864, in order to be up with the times, he purchased, in addition to Quinby's Mysteries of Bee-keeping, a copy of the third edition of Langstroth on the Honey-bee, and also his first Italian queen from Mr. Langstroth, at the same time procuring one of his movable-comb observatory hives, which is still retained in his apiary as a memento of his youthful experience. Mr. G. has never laid claim to being what many consider an extensive or specialist bee-keeper, his colonies never numbering more than 75. It is, however, his intention, at an early date, to go more extensively into the business.

F. A. GEMMILL.

His preference has always been for the eight-frame L. hive; and with the exception of half a dozen Jones style, for experiment, has had no occasion for a larger one. However, he secured 25 of the New Heddon style as soon as manufactured in Canada, and is more and more leaning toward fixed distances of some kind, especially as the moving of his colonies from one location to another is not only a benefit, but of late an actual necessity.

The wintering of bees has been a fairly good operation with him, both in cellar and outside, and he is a little inclined of late to the outside method, for the reason that, in his locality, cellar-wintered bees need spring protection. On this point he is satisfied beyond a doubt. His location, especially since the late poor honey-flows, is, he finds, considerably overstocked; notwithstanding this he has secured fair crops of both comb and extracted honey. This, of course, has not been accomplished without proper attention to all the little rules and regulations connected with the pursuit.

It has never been a hobby of his to try every new-fangled device appearing from time to time, neither has he been slow in adopting such simply because new; hence his preference for such labor-saving apparatus as honey-boards, bee-escapes, etc.; among others, a hive-cart *a la* Boardman.

Of late years he has taken an active part in attending meetings, etc., and has, besides being president of a number of local or county associations, also been vice-president of the Ontario Association for two years in succession, and is now president of the latter, having been appointed such at the meeting held in London in January last.

Mr. G., like most bee-keepers, has had his sweet and bitter experience in apiculture—yes, has had experience with the pest of the apiary—foul brood; therefore his determined stand at urging legislation in regard to the disease for two years past, with the happy result that Ontario has one of the best, if not *the* best, acts in the world, the forming of such act being principally due to the efforts of Mr. A. Pringle, late president of the association. Mr. G. also took an active part in securing the bill now in force in Ontario, making it a penalty to spray fruit-trees while in full bloom.

In his younger days he learned the printing business in his father's office, and afterward followed the drug business for ten years; but for a number of years he has occupied a position in the civil service of Canada.

His family consists of wife and two children (a son of 17 and a daughter of 13). It was the pleasure of the younger editor of GLEANINGS to meet Mrs. G. and himself at Brantford in '89.

Stratford, Ont., Apr. 29. A. LAMONT.

DR. KELLOGG AND HONEY.

A CRITIC CRITICISED.

You ask my opinion of the article from Dr. Kellogg regarding honey. I think it another case of a man's writing on matters of which he knows little, accepting statements from others which he has not even attempted to verify. As a result he has crowded about as much error into a small space as it is possible to do. It is true, that honey is not wholly sugar; but does that prove that it is less valuable? Our gold coins are alloyed, and who would say that they are "open to greater objections" because of the alloy? The alloy makes them more valuable, and makes them worth more as coins. May not the flavoring material of honey make it more palatable, and possibly more nutritious? If so, it adds to its value as food. If the glucose sugars, to which honey belongs, are not better than cane sugar, why is cane sugar reduced to glucose sugar, or digested, when eaten, by all animals? Nature shows us that honey sugar is a better food. Bees have to digest nectar—which is cane sugar—or change it to reducible sugar, before it can be absorbed. We have to do the same. May it not be, then, that reducible sugar such as honey is more wholesome than cane sugar, and that we are safer in eating honey than in eating our common sugars? The presumption is strongly on the side of the honey, and so the burden of proof lies with those who favor cane sugar.

That bees are not neat is a new idea. I wish we could be assured that all parties engaged in manufacturing our food-stuffs were as neat. Bees do visit uncanny places, but in quest of water and saline substances, which are not mixed with honey. The nectar which comes from flowers, honey-dew, etc., is clean, especially as it is placed in the honey-cells. It may not always be of good quality; but that which is inferior, either in taste or color, is easily discovered, and is not used or sold as food by the bee-keeper. I believe that no sweet--not even maple syrup from the neatest sugar-bush—has so much to recommend it in the way of cleanliness as does honey. It is a new idea, that the bees store with their honey the pollen rubbed off as they touch the anthers. Surely Dr. K. needs to brush up on the habits of bees. It is true, that a very small portion of pollen is taken with the nectar as they sip; but this is mostly separated by the stomach-mouth before the bee gets to the hive, so that only an infinitesimal portion is stored in the hive with the honey; and why does he say, "if the pollen happens to be poisonous"? We know that bees are very easily poisoned. How little ether, cyanogen, or arsenic it takes to kill a bee! And yet the bees live on pollen in great part, and digest it for their brood, and not only live but thrive on it. Pollen is about as poisonous as A No. 1 flour.

That Trebizond honey of Turkey—so fatally poisonous—is getting to be a veritable chestnut. I don't believe the honey anywhere in the world is poisonous. The same story is told about our mountain-laurel honey. The old Trebizond soldiers ate too much honey, and were sick, and so the old story about poisonous honey, which has been kept alive for centuries. A similar story was started in Revolutionary days about American honey along the mountains of Pennsylvania and Virginia; yet who believes that it had any foundation? Some years ago the students of our college cut a bee-tree. All feasted to the fill on the luscious clover honey. About fifty were not at class that afternoon. All we needed was the presence of some Xenophon, ignorant of bees, to get up some superb canard about the awfully poisonous quality of the Michigan white-clover honey.

And, last, Dr. Kellogg has got on to the old canard about the bees poisoning their honey by spraying it with the poison from their honey-sacs. And more, the bees are vindictive, as they will add an overdose of this poison if irritated, which makes the honey rank (*sic*), and rank honey is terrible—why, it will often create a rash! and, worst of all, "These facts have all been determined by scientific investigation." The fact is, the above statements are veritable "bosh," and not facts at all, and so could not be determined by scientific or any other investigation. I teach my students that good nursing is altogether more potent to stay disease than the doctor; and when I read such nonsense as the above, and that from a physician of wide repute, I feel like advising great caution before we give the lives of ourselves or our families into the hands of men who are not more careful in their statements. To write so carelessly, and to roll misstatements, with no attempt to prove them, as a sweet morsel under the tongue, is certainly a great faith-shaker. A. J. Cook.

Agricultural College, Mich.

[And now, my good friend Cook, are you not coming down rather heavily on our friend Dr. Kellogg? I think he deserves it; and were I sure that you two could both shake hands over it in a friendly way after Dr. Kellogg has read the above, I should not feel troubled. The lesson that comes to me is, that we should all be careful; and especially do we need to be careful when acting as critic, and particularly when we are a little out of our legitimate field. I greatly value Dr. Kellogg's family doctor book; but I must confess, that, when I read his rash criticisms on our own industry, I fell to wondering whether he made his statements in his book on family medicine in the same rash, hasty way. We are all anxious to be right. We like, also, to be considered authority, at least on that which is in our own line of work; but if we expect to be authority on any thing, we must be careful. Perhaps Dr. Kellogg is a very busy man; and I wonder if it would not be better for him if he were to attempt less in order that he might be sure he is right in what he does do. Let us all take the lesson home. See p. 331.]

A. I. R.

LADIES' CONVERSAZIONE.

FLORIDA.

MRS. HARRISON GIVES SOME OF HER IMPRESSIONS.

Mr. Editor:—April 13th I enjoyed the pleasure of visiting the apiaries of Alderman & Roberts, the largest in Florida, and excelled in number by few apiaries in the United States or the world. The home of the Aldermans is unique in its kind, being built over the waters of the lake, and steamboats come and go from its wharf, which is like a front porch; and baited hooks are suspended from it to catch fish. The lower story is used as a warehouse and office, while there are very pleasant family rooms above, and a promenade around on the outside. From one of these promenades, ripe oranges and blossoms could be reached. I enjoyed walking around this promenade, and looking far away over the waters of the lakes, whose surface was covered with pond-lilies, with their great green leaves spread out upon the water. This paradise of a home, with its damp fertile gardens, luxuriant orange-groves, boating and fishing, has but one drawback; and that is, mosquitoes and malaria; and from May until September, those who are able to leave do so, to avoid its baneful attacks.

Wewahitchka, in the Indian language, means the lakes of the two eyes, or eye-glasses joined together. These lakes are eighteen miles long, and from three to five miles wide; they are familiarly known as the "Dead Lakes," from the dead cypress-trees with which they abound.

As I was traveling homeward on board the Queen City, ascending the Apalachicola River, I continually heard sportsmen congratulating one another on their success, and extolling these lakes as the greatest place in the world for sport, and exhibiting their trophies as proof. My interest in them centered greatly in their being such rich pasture for bees, in their aquatic vines, shrubs, and trees. They afford a rich study for the naturalist to delve into nature's secrets, and endeavor to solve the problem, by what great convulsion of nature were these mighty giants of the forest lowered into the waters, which deprived them of their green leaves and pristine loveliness? Now they stand as mute monuments of their former greatness, shrouded in clinging vines and drapery of hanging moss.

APIARIES.

In the region of these lakes are 2500 colonies of bees, and the firm of Alderman & Roberts own 1300 of them. On the afternoon of my arrival Mr. Alderman escorted me to see one of their apiaries, located on an island. We wended our way by a path, through the orange-groves, which ended in the water-side, where a boat was in waiting. I was directed to take a seat toward the prow, while Mr. Alderman and the propelling power, in the person of a sturdy descendant of Ham, occupied the stern. The boat pushed out from the shore into a labyrinth of water-lilies, aquatic vines and bushes, while above towered those mighty giants of former centuries, clothed in funeral garb. When we reached the opposite shore a beautiful panorama opened to our view—orange - trees, and long rows of gayly painted new hives, under sheds. These sheds had roofs inclining in opposite directions, supported by stout posts. The hives were placed in rows facing outward, and there was plenty of room in the shade, between the backs of the hives, out of the bees' flight, to perform the work in the hives. A very pretty star, in variegated colors, adorned the portico of each hive, which presented a pretty effect. As the star guided the wise men to the Babe of Bethlehem, so this apiary should be the guiding star to apiarists in the way of neatness and beauty. Every thing was in holiday garb, as if in readiness for the Columbian Fair.

As the sun was setting we entered the boat and bade adieu to the manager and his two interesting little boys by his side. Mr. Alderman remained to go the village by another route, to attend prayer-meeting at the Methodist church, of which he is a devoted member, consigning me to the care of his faithful colored man, who had been with him for nearly a score of years, and to whom he had intrusted his own family in numerous instances. During a drouth, when the waters were low, obstructions had been removed, a roadway cut, and guide-boards nailed to the trees, and pieces of burlap tied to the branches, to keep travelers from getting lost in the dense swamp. In the gloaming, with no sound but the dipping of the oars, the faithful oarsman avoided every obstruction, and eagerly scanned for those bits of board and of burlap, which were so valuable to us in this our time of need; for without them we might have lost our way, and been compelled to pass the night in the swamp. We reached the shore in safety, and soon entered the hospitable home of the Aldermans. More anon. MRS. L. HARRISON.

Peoria, Ill., April 25.

WAX FLOWERS.

MRS. AXTELL TELLS HOW TO MAKE THEM; CONCLUDED FROM MARCH 1.

Peach, apple, or crabapple blossoms are made by putting a small heading on a wire looped down at one end, of a little fringed yellow or white wax, or a bit of pink or white ribbon fringed, and the petals like those of the center of the fuchsia; or, get a blossom and cut the pattern from them, rubbing a very little red paint underneath each petal to give the tint of the natural flower. Pear or plum blossoms are made almost the same, only white. A cluster of white pear-blossoms is very pretty in a wreath. Cherry-blossoms are so small they are tedious to make. Cherry, blackberry, strawberry, and raspberry blossoms may be cut out with the phlox-cutter. For lilac, use a lilac-cutter, and white or purple wax.

Phlox are made by cutting out the petals with a phlox-cutter; also verbenas with a verbena-cutter. Stick a pin through the center of the flower, and draw a pink stamen through; then put a speck of wax under the flower and stick it to the stamen to keep it from slipping down. Make several of these, stick them all together on a stem, adding green leaves. Tint the phlox if you like, by rubbing a little of the carmine on the under side of each flower.

Snowballs are made by putting many of these white phlox together with plenty of green leaves. Lilies and long-petaled flowers are more apt to droop and get out of shape. If they are made, use double wax, or the thick wax used in making pond-lilies.

For pond-lily, use the double, or pond-lily wax. The center is formed on a stiff wire, of green or brown wax, about as large as a small peanut. Pinch it smooth and round; then, with the sharp-pointed molder, press the sides into ridges. Take two strips of yellow or orange wax, an inch and a half wide, if for a western pond-lily; if for a New England lily, three-fourths of an inch wide is sufficient (as the western pond-lily is more than as large again as the eastern). Cut one strip in coarse fringe, and the other in fine fringe. Lay the fringe on the palm of the hand. Take the dull molder and stroke each thread of the fringe, which will curl it up like center leaves. Put the fine leaves on first, then the coarse fringe, letting it all curl toward the center. Stick on 30 or 40 pond-lily petals, hollowed a little so as to curl slightly toward the center, graded in size and length from small to twice as large. Lay a small fold on the point where joined to the stem, to make the petal stronger.

The sepal, or covering of the flower, is made very broad and rounding, three in number, and is thrown nearly back upon the stem, made of dark green wax lined with white wax with a very thin cloth between, pressed firmly together, made very hollowing with a large molder (a round door-knob will do for a molder). Trim neatly, and press on tightly. This supports the long petals. Add large green leaves of several sizes, or trim the large ones so some will be smaller, if but one leaf-mold is used; also make some buds of white wax, with calyx just opening. As this is a large flower, place it at the bottom of the wreath, or put it above in a pond-lily vase, which should have a mirror in the bottom, to look as if the lily were standing in water. If used above, rub upon each petal plenty of arrow-root, except at the base of the petal, which gives it a velvety look. Some of the center petals may have the least shade of pink color mixed with the arrow-root. Do not get too much color, as a pond-lily should be nearly white or yellow.

Patterns from these are easily cut from paintings, where the natural lily can not be procured; they are also often seen in the artificial flowers. After one has made a few flowers it will be easy to make almost any flower by having the natural flower to model after; but as some flowers are much easier made, and retain their shape better, I use mostly those with short petals, as they do not droop out of shape as do long-petaled flowers.

The box for the back of the frame for flowers should be three inches deep, and the flowers should be tacked in so as to stand out distinct from each other, nearly touching the glass. Line the box with white printing-paper. Let the green leaves come between the flowers and the paper for a contrast, especially the light flowers. Tack the flowers to the back of the box before fastening it to the glass front. Use broad-headed tacks and a small hammer, and a nail-set, beginning at the top with the small flowers and small leaves, and work around as in a wreath, but do not let the wreath quite touch in the center at the top.

The first flowers I generally use are fuchsias drooping down from the center; then phlox, verbenas, and other small flowers and leaves; at the sides come in groups of roses, and apple and peach blossoms, chrysanthemums, etc., while at the bottom are the heavy flowers, such as snowballs, dahlias, etc.

In arranging the flowers in a wreath, be sure to use as many red flowers in one side as you do on the other, or as many white or pink in one side as the other, and each side about as many and as heavy flowers as we used in the other, to look symmetrical.

A white cross arranged for the center of a wreath is beautiful. My wreath has in its center a chromo of a little child, whose eyes follow any one wherever he may be in the room. The flowers are arranged in a wreath around it.

The yellow-headed bumble-bees are very pretty, killed, and a pin stuck through them, and pinned to a flower. They do not wither up as honey-bees do. Do not impale them with the pin until they are dead. One or more butterflies are pretty in a wreath if the butterfly is not too large nor too many of them. I kill them by holding them by the wing and cutting across the abdomen. It costs too much to buy many cutters. I buy only phlox, verbena, and leaf-mold cutters, though cutters for each flower can be purchased; but they would need to be made differently from the directions I have given.

I think I have mentioned all the tools that are needed, as I have made several large wreaths and a good many bouquets. Next time I will tell how to make a white cross, and arrange other flowers into crosses or a harp.

Instead of purchasing a picture-frame for the front of the wax-flower box they look very well with only a large sheet of glass glued to the box; but I prefer a neat frame that fits on tightly and is screwed to the box of wax flowers —not put on to open and shut like a door; that lets in too much dust. When fastened in I also paste over all cracks thin cloth or paper, as flowers will last a lifetime if kept from the dust and insects, and from getting too warm in winter from a stove. The natural heat of summer will not melt them unless stove heat is also added, as I have a large wreath I have had for twelve years or more in perfect preservation.

Roseville, Ill., Jan. 23. MRS. L. C. AXTELL.

FOUNDATION-FASTENERS.

THE DAISY, AND WHAT MISS WILSON THINKS OF IT.

When Dr. Miller came home from Medina he told me he had bought a Daisy foundation-fastener, and wanted me to wait until it came before commencing to work on the sections. I did not say so to him, but I thought, "I *know* I won't like it as well as the Clark." I don't know but I've said I didn't want any thing better than the Clark. But I've changed my mind —I do. I want the Daisy, for it is far ahead of the Clark; and if you have any thing better than the Daisy, I want that. When I first tried the Daisy I could do very good work with small starters, but could not manage the large ones. We use a small starter ¾ in. deep at the bottom of the section, and a large one at the top that will almost fill the remaining space. It was these large starters that bothered me. Their own weight would invariably bring them out before I could turn the sections over, and I could see no way to avoid it. With the Clark I had placed my fingers behind the foundation, supporting it as I turned the section over—a thing I could not do with the Daisy. But I kept trying different ways. I had not worked very long before Dr. Miller says he heard a very emphatic "I have it!" I had to give up altogether the instruction to push in the section with the ring fingers. Instead I used the third and fourth fingers of the left hand on the top of the section, and the thumb on the bottom, to push the section in place, and with the tips of the first finger of each hand pressed the foundation in place as it slipped off the heated plate. Then letting go the right hand, I turned the section over with the left, still holding the foundation in place with the tip of the first finger, as I turned it over, and it worked nicely.

Mr. Root, did you ever try putting in large starters, and could you make it work? You see, you can't throw sections with large starters directly from the fastener into a basket. They must be set right side up, because the large starters will come out while warm, as I have already said, their own weight pulling them over. Indeed, I don't think that at any time it would be a good plan to throw sections with large starters into a basket indiscriminately.

Let me name some of the advantages that the Daisy has over the Clark. You do not have to use the feet, and using the feet all day is very tiresome. You are not obliged to wet the foundation-fastener to keep it from sticking. The foundation is heated as you put it in, and you are not obliged to keep your foundation in nice even piles so as to have one edge warmed. (Sometimes those piles would tip over, much to my annoyance, so perhaps the Daisy saves my temper.) Cold foundation is easier picked up than warm, because it doesn't stick together so much; and with the Daisy, cold foundation works better than warm. So you can have your foundation in your lap, and thus avoid reaching for each piece—no small item in a day's work.

The hotter you can keep the plate, the better work the Daisy does, both as to speed and secure fastening. I questioned a little at first whether the sections would stand hauling as well as they did when fastened with the Clark; but I do not think there will be any trouble on that score, as they seem to be very securely fastened when you keep the plate hot enough. In fact, if properly put in you can not pull the starter away from the wood, as the foundation will give way elsewhere. EMMA WILSON.

Marengo, Ill., April 21.

[We never put in large starters for our trade, as they would not stand shipping. For large sheets it may be necessary to modify the directions some; in fact, we rather imagine that every one will have his own way rather than follow any prescribed directions. Yes, we were certain you'd like the Daisy, and told Dr. Miller so.]

THE MOUNTAIN LAUREL.

HOW THE BEES GATHER HONEY FROM IT IN KENTUCKY; THE HONEY NOT POISONOUS.

In the Apr. 15th number, J. W. Grove says he has a young man living with him who lived all his life in Northeast Tennessee, saying he never saw a bee on what is called "mountain laurel" there, and believes bees can not work on it, on account of the fact that the blossoms are too sticky. Yes, bees do work on it here in West Virginia, on the Alleghany Mountains. There are hundreds of acres here in these mountains. There are two kinds—big and little laurel. The little is the kind the bees work on most. Last summer bees worked on laurel quite strong in preference to white clover. True, the blossoms are sticky, but bees load up, I think, in half the time they do on white clover. I never heard of any one being sick here from eating laurel honey, although the leaves of the little laurel are poisonous to cattle and sheep; but I hardly believe that laurel honey would have so much poison as to make one sick. I have found about 40 bee-trees since I came here, and all in reach of laurel. The honey from these trees never made us sick. JOHN SLAUBAUGH.

Eglon, W. Va., April 29.

[See Prof. Cook's article, page 374.]

NOTES OF TRAVEL

FROM A. I. ROOT.

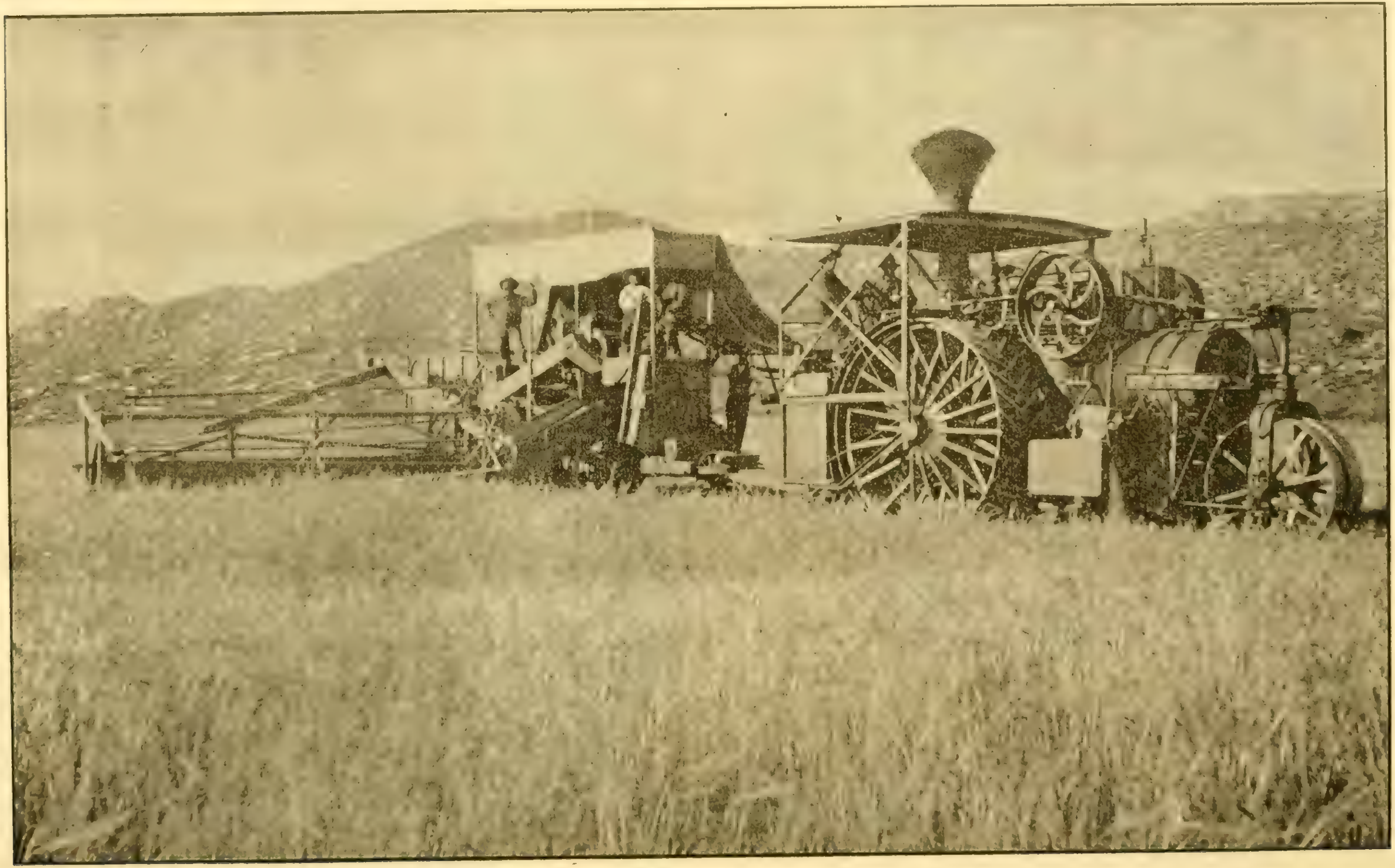
Feb. 1.—We are now at San Jacinto, near the foot of the San Jacinto Mountains. Although the peak is only 11,500 feet high, it is to me the most wonderful and imposing of any mountain I have yet seen in California. Of course, it is snow-capped at this season, and the greater part of the season its summit is more or less obscured by clouds and snowstorms. There is somehow a wonderful fascination about it to me, and I turn again and again and gaze at the rocky citadel, reaching away up among, and often over and above, the clouds. When the weather is clear we can see the summit of "Old Baldy" also, although said summit is toward a hundred miles away. Its top is so clean and white that Mrs. Root insisted it must be some fleecy cloud illumined by the sun; but clouds move and vanish away, while the white tops of the "eternal hills" are fixed for ever. At the base of the San Jacinto range of mountains there are innumerable hot and warm springs that are a never-ending wonder to me. You may remember my theory of accounting for the heat, on the ground that it is caused by the mixing of waters highly charged with chemical salts. Well, here they have a great hot spring that would almost run a mill, and yet the water is pure and soft, and does not seem to contain any chemical at all. In fact, they send it up into an elevated tank by means of a hydraulic ram, so that it may *cool off* and be fit for drinking and domestic purposes. Now, although the temperature of some of these springs runs up as high as 160°, no attempt has yet been made to utilize this vast quantity of heat for greenhouses, outdoor gardens, incubators, or even for warming buildings, so far as I can find out. The people at the bath-houses buy wood and fuss with stoves, while at the very same time they are sending this hot water in iron pipes right past their doors, to *cool it off!* Why in the world they don't run it through a coil of pipes placed in the rooms, or even through a single pipe running around the room, is more than I see. Of course, it is often *too* warm in the middle of the day, even *occasionally* in winter; but how much expense would it be to close a valve and let the water flow outdoors as it does now? Oh! I wish I had nothing else to do, so I could come out here and start a queen-rearing plant, using the hot water to warm up the "lamp-nursery," the nuclei, and perhaps a few strong colonies of bees, so as to get lots of drones to fly during these occasional warm days. While I raise the queens, *Mrs.* Root is going to raise chickens, and have a *very small* egg-farm.

East of the town, about two miles and a half, is a sanitarium where the hot water comes out of the sides of the mountain, up perhaps 200 ft., and in these hot-water canyons are sunflowers higher than your head, *in full bloom;* and, mind, this valley is a cold location, where frost is common, and snow comes occasionally. The green vegetation, all along the hot water, clear down into the valley, clearly attests the value of the hot water for pushing vegetation ahead of the season. What a little paradise this might be for the strawberry-grower! At both places we saw arrangements for washing clothes right in the open air, and in one an aged Indian woman was away off up the mountain, alone, doing up quite a large washing in the Indian fashion. There is no sort of question in regard to the curative properties of the hot water of these various mineral springs. I was at first inclined to ascribe it to the daily bathing; but instances that came to my knowledge incidentally furnish, an amount of evidence too great to be set aside. One of our bee-men was almost at death's door with rheumatism, and the water of the springs gave him almost immediate relief; and after only five weeks' treatment he climbed the steep rocky mountain with us, with comparative ease. San Jacinto and vicinity seems to be a favored locality for people afflicted with asthma and kindred diseases. We met again and again with people who really can not live in the Eastern States, who are comparatively well while they stay here. Some of them, after being cured, have tried going back to their old homes and relations; but the malady soon comes back. It seems that certain localities favor certain symptoms or constitutions; and the problem, therefore, seems to be to find the place where you get most relief. The result is, that we find many intelligent and cultivated people away back in the rocky wilderness, keeping bees or raising fruit, simply because they can not live anywhere else, and they feel as if they must have something to do. I would most earnestly advise those who can not enjoy fair health where they are, to give different portions of California a trial. Don't *invest* until you are tolerably sure you have found the place you want; but, rather, try the air and surroundings for a few weeks, a month or two, or a year; and if by that time your affliction seems to be giving way, then make arrangements for a permanent home. At San Jacinto the air is nearly always dry, and at certain points there is hardly such a thing as a fog known. These localities are especially favorable for drying fruit out in the sun, and fruit is often shipped to quite a distance, where it may dry secure from fog. Such locations seem to favor asthmatic people.

Here is one of the great grain-producing valleys of the world; but it isn't done at all as we do it in the East. And this brings to mind the fact how little our agricultural papers of the East are fitted for farming here. Again, the farming of one portion of *California* is so utterly unlike that of the other, that the instruction and papers for one would not do for another at all. More of this anon. Here in the valley of the San Jacinto they sow their grain at any time from October to February, rarely later than Feb. 1. It is mostly put in at one operation, with a machine that is in itself a plow, seed-sower, and harrow combined. Mr. H. I. Morse, to whom both myself and Mrs. Root feel greatly indebted, told me the following:

He rented 16 acres of ground for $16.00. With the help of his son and eight horses they sowed it to grain in one day. They never went on the ground any more until after the harvesting was done; then they picked up the sacks of grain and hauled them to the depot, where they received the cash for the crop. After taking out all expenses they received $90 for the *one day's work* I have mentioned. Now, please don't imagine that *every* man and boy in the San Jacinto Valley gets $90 for *every* day's work they do. The harvester mentioned is shown on next page.

The machine cuts the grain, thrashes it, cleans it, and puts it in bags, all for 10 cents per bushel, and it wastes less of the grain by shelling out than any of the common ways of cutting and thrashing. Of course, such a machine is possible only where it never rains in summer. The gang that run the machine furnish every thing but sacks and fuel. A "cook-wagon" is a part of the apparatus, so that the farmer has no great lot of men to board and lodge. Well, in San Jacinto they do not irrigate for grain at all. The rain that falls during the winter months starts the grain to growing and makes the crop. I made a good deal of inquiry, but they seemed to think it wouldn't pay to irrigate



THE WAY THEY DO THEIR HARVESTING IN CALIFORNIA.

land for growing grain at present prices. I thought of the artesian wells of South Dakota, of the fond hopes of the farmers there, and felt a little blue about it myself. Well, where I sit writing this morning they raise *miles* and *miles* of beautiful grain of *all kinds*, and they *always* irrigate it. How little does one part of the world know of what the other part are doing!

A NOVEL METHOD OF TAKING HONEY.

Mr. R. S. Thomas, of Winchester, gave, among other valuable facts, the following:

Not far away is a Mr. James Rawson, who has several hundred colonies, and he takes away all the honey by means of what he calls a sun extractor. As fast as the bees get the upper stories well filled, the whole contents is dumped into the machine; and, under the intense heat, wax, honey, and all runs out and is caught in proper receptacles. The extractor is 12 feet long, and wide enough to take common window-sash. The bottom slopes, like a trough, so as to run out the honey and wax. A false bottom, covered with wire cloth, holds the honey near the sash. Over the wire cloth is coarse burlap; this strains both honey and wax. With this rude apparatus Mr. Rawson took one year 23 tons of honey and $300 worth of wax. He admits he does not get as much honey as when the combs are emptied and put back; but he claims the value of the wax, with the saving of labor, makes up the difference. The honey is made a shade darker, and usually brings a lower price; but when it is run out pretty quickly from soft new combs, the color is pretty fair. The honey is run, while hot, into square tin cans, and the whole product of the apiary is got ready for the market with very little labor. The heat of the extractor clears the frames of every thing, so they are like new ones, except a thin coat of wax that looks like varnish. To save time, both of bees and operator, a new set of frames is put at once into the super, and the bees commence at once to fill it up as they used to fill boxes in olden time. I believe our friend proposes to continue this method during the coming year. Should he have a good yield of light sage honey, and his crop bring a cent or two less per pound than his neighbors who use the extractor, he *may* lose some of his enthusiasm. If I am correct, he depends mainly on smoke to get the bees out of the supers; but very likely a good many of them never get out, but go into the sun extractor with the wax and honey.

While visiting W. J. Haslam I examined samples of the foul brood they have in the vicinity. My impression is, that it is a different and a milder form of the disease than what we have in the East. For instance, I am assured by several reliable men that it has, in quite a number of cases, disappeared of itself. I also found a hive, pretty fairly filled with good healthy brood in all stages, and perfect bees hatching out in considerable number, where old sunken cells were to be found at the outside edges of the combs. These cells when punctured contained the ropy matter, and seemed to have the familiar smell. Mr. H. had been watching this colony over a year, and it had given a good yield of honey; and this spring there were certainly no diseased cells right *among* the new brood. This is a puzzle to me. May be some of the friends can tell us more about it. In our apiary (when we had foul brood), when it once got into a hive the number of diseased cells *never grew less*.

All over California we find a plant growing wild, called "mock orange." It looks like the same thing we sometimes grow in the East, just for playthings for the children. Well, I was astounded here at the enormous crops it bore—sometimes not only hundreds, but it seemed like a *thousand* on a single hill. I wondered where the enormous amount of fertility could come from. Friend Morse explained it by showing me roots of the plant that had been plowed out, almost as big as a common stove. Late in the season this great root sends up sprouts that grow and bear fruit, as only a plant with such a root *can* grow. "Storage battery" again. It would seem that nature is not only ahead of us in almost every invention we make, but this orange seems to be a veritable storage battery indeed. It locks up, as it were, in that great, heavy, clumsy root, that is a terror to the gardener and fruit-grower, an amount of material for future use that enables the plant to make this astonishing growth. Are you watching for the moral? Why, train the plant to grow something useful or something good for food, and what a treasure it would be! I am impressed that the thing is possible by seeing some Hong Kong cabbage in a Chinese garden. The vegetable seems to be a sort of hybrid or mongrel somewhere between a cabbage, lettuce, and edible topped beet. The inside leaves are crisp, white, and nice to eat, even raw.

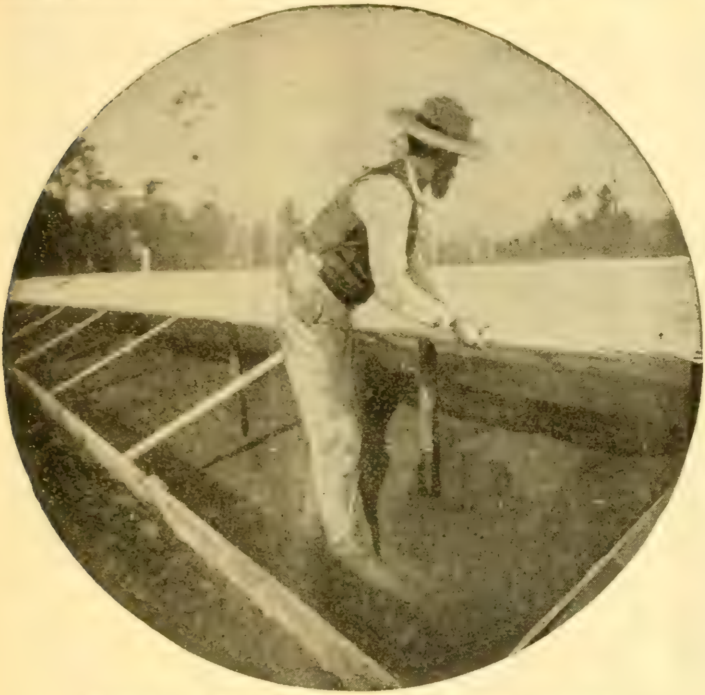
HIGH-PRESSURE GARDENING.

BY A. I. ROOT.

RHUBARB, OR PIE-PLANT.

Of late I have been "getting acquainted" with the above plant; and it seems to me that it has hardly had the attention that it should have. At seasons of the year when fruit is difficult to obtain, and high-priced, pie-plant is certainly a boon to mankind. If you do not believe in pies, have your wife make some nice bread, and use the rhubarb as sauce with your bread and butter. If you want it before it comes outdoors, a very little heat will do the business, as it is one of the easiest plants to force or push that I know of. In the cellar under our machine-shop is a drip-valve, as we call it, that takes the condensed water from the steam-engine above down to the cellar bottom. The water then runs into the cellar drain through a small-sized tile. Of course, when just coming from the engine the water is a little warm. Well, one of our boys said he knew he could raise pie-plant over this small tile in the cellar bottom; and, sure enough, right in the depth of winter he had the most beautiful rose-colored stems of rhubarb I ever saw. They were long, and delicately tinted, because they grew in the dark, and were about as delicious as any thing people often put into pies. Over the exhaust steam outdoors that I have told you about, rhubarb starts with wonderful luxuriance. It is true, the frost has "cooked" it once or twice during our recent frosty spring; but the plant showed its *good will*, anyhow. Well, I have been wondering what has been done in the way of new varieties. In fact, I am just preparing to have a trial ground of rhubarb, testing every thing in the catalogues. Before doing so, however, I thought best to write to our good friend Green, of the Ohio Experiment Station, and see what they had already done in that line. Below is his reply:

Mr. Root: In reply to yours of the 29th I would say that my experience with rhubarb has been rather limited. Two years ago we sowed the seed of four varieties—Victoria, Linnæus, Carlton Club, and Egyptian Queen. Of the first two kinds we got a fair stand; but of the others, hardly enough for a fair test of their growth out of doors. The Victoria seems to be the strongest, but the Linnæus rather earlier. The roots were dug up and put into the greenhouse for forcing in January during the past winter, and there the Victoria and Linnæus seem to have about the same qualities, and the other varieties nothing to commend them.



ROLLING UP THE CURTAIN TO A BED 150 FEET LONG.

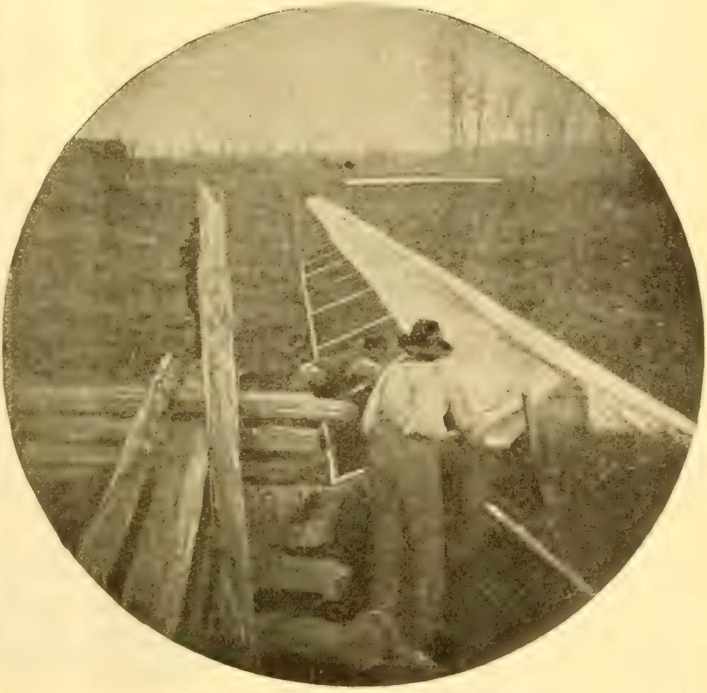
The seed is rather difficult to sow, either with a drill or by hand. In looking through the books I find these two varieties recommended in about the way I have described. In the catalogues they are about the only kinds mentioned. Henderson gives a new kind, and so does Rawson, with extra prices. I wish other vegetables were cut down to two kinds that could be recommended as well as these in rhubarb.

The question you ask in the last GLEANINGS I can not answer, as we have never raised carrots to speak of. I tried your plan of planting celery early to get it to run to seed, as we wanted to get a cross between Silver Spray and White Plume; but it would not go to seed, and all winter-killed during the past winter, so we shall have to try again.

We have made quite a success with our mushrooms this winter. From *under the beds* of about half of one house we have sold nearly one hundred dollars' worth. It beats any thing we have tried to raise under the beds.

E. C. GREEN.

Columbus, O., May 2.



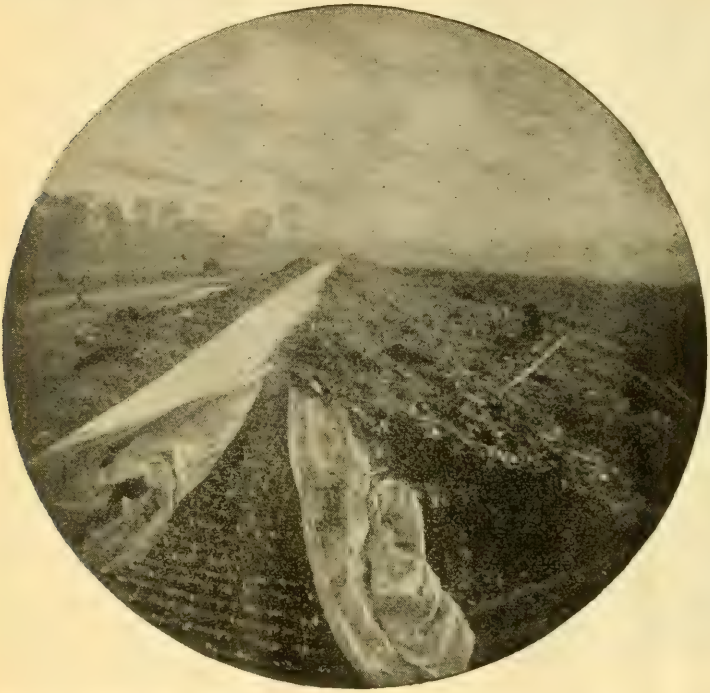
CLOTH COLD-FRAME, 250 FEET LONG.

During the winter and spring months, before rhubarb was grown in the open field, we received 20 cts. per lb. for it; and, in fact, we received 20 cts. per lb. for all we could get outdoors for perhaps the first week. Then competition sent the price down to 15 and then to 10 cts.; and today, May 9, it has got as low as 6 cts. at retail. My impression is, however, that it could be raised at a profit at only *one* cent a pound—that is, if enough of it could be disposed of to make it an object to produce it in quantities.

SOME SKETCHES FROM OUR FORTHCOMING TOMATO-BOOK.

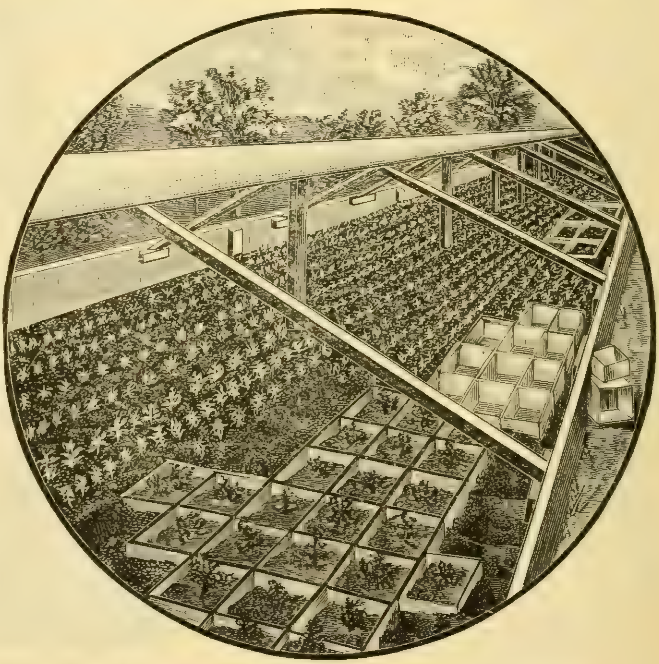
In our issue for March 15 I gave a description of the new industry at Crystal Springs, Miss.—raising early tomatoes for the northern markets. At the time, I told you I would give some pictures later on. The first picture shows how one man rolls up the curtain to a bed 150 feet long. It also shows the general plan of the cloth-covered cold-frame or hot-bed.

The next shows the way in which two men can roll up the curtain to a bed 250 feet long. It also shows another cloth cold-frame in the distance. The third is a view of one of these cold-frames with its covering of pine leaves and straw, to protect the plants from a severe frost. In the picture you will notice that the covering has been removed from one side of the bed, the other being left on. With a rake, and sort of brush or broom made of branches of trees, this light covering can be thrown off or brushed off very quickly. It is left on the ground at the foot of the curtain, where it will be ready for use the next spell of cold weather. When a frosty night is coming, his men, with appropriate forks, will scatter the litter over the canvas beds very quickly.


ONE OF THE CLOTH COLD-FRAMES, WITH ONE SIDE FIXED FOR A SEVERE FROST.

The last of this series of pictures is a wood engraving. We copy the description from the tomato-book.

It also gives a nice idea of the way in which the cloth frame, double width, is constructed, except that the engraver has shown the stakes, that hold the plank sides, on the *inside* of the bed instead of the *outside*. I suggested to friend Day that I thought the inside preferable. His objection was, that they occupied room that might be used for plants; and when I still suggested having them on the inside instead of the outside, so that they would be entirely out of the way of the curtains, he replied that they made them shorter in order to clear the curtain-roller. If made shorter, however, they do not hold the plank so securely from warping. I have had some experience in this line with plant-beds. The berry-boxes are just about like our quart boxes, except that they have no bottoms. The blanks can be bought very cheaply without bottoms. Friend Day has them nailed up, right on his grounds, just as they are used in the bed. Now, with us we would drive a very lively trade in selling plants, box and all. In fact, we have quite a few customers who would give a nickel for a nice tomato-plant growing in a box. It is true, however, that it requires more care to grow plants in boxes than in the entire level surface of the ground, especially during a dry time. As friend Day suggests, they will dry out, and the plants will die; whereas, if they stood right in the bed there would be no trouble. Where a bed is filled with these boxes, the dirt is first shoveled up in a heap, down to about four inches in depth, then the bottom is nicely leveled off, and the boxes placed in, tight together. Now the dirt is shoveled into and over them, until a strip of board can be passed over so as to level off the dirt, as you would strike off a measure of grain. Now set the plants, one in the center of each box.


TRANSPLANTING WITH AND WITHOUT BERRY-BOXES.

May 13.—Oh what wetness! It rained until the ground was soaked, and then rained again; and where the gardener did not just stir himself and make things fly whenever the ground was in proper condition, his crops are not in. I think I never enjoyed seeing underdrains do their work as much as I have in the past few days. A new piece of ground had never been drained; but it was so near the railroad bank that it seemed to me as if it did not really need it; but I finally put in drains every 20 feet, even though the ground was on a good slope. And now as I go along the bank I see a stream of water issuing from every outlet, and the piece of ground dries out beautifully, and no water ever stands on its surface at all. To keep the outlets from washing away I fastened together three pieces of one-foot tile by crowding them into a galvanized pipe two feet long, the tiles projecting 6 in. at each end of the tube. Where the end sticks out of the bank it is firmly imbedded with stones above and below the end.

OURSELVES AND OUR NEIGHBORS.

No good thing will he withhold from them that walk uprightly. PSALM 84:11.

For many years there has been more or less discussion in our little household in regard to the propriety of Christian people engaging in card-playing and dancing. Now, please do not imagine that I am going to take up the subject and discuss it right here. I presume that almost every one of my readers, especially those who are members of churches, have gone over this matter again and again, and very likely they are familiar with the arguments pro and con. I may simply say, however, that card-playing and dancing have never as yet found a place in our home. Neither have the "Root boys" or the "Root girls" taken part in such amusements in *other* homes. Perhaps this might not have been the case, however, had it not been so well understood by all members of the family that "pa Root" was very decided in his views in regard to such matters. I do not wish here to convey the impression that there was a dissension in the family in regard to the matter. In fact, after some little discussion with the young people a few days ago I astonished them somewhat by telling them that, after thinking over the matter — yes, and praying over it—I had decided that it was my duty to tell Constance (she that used to be called "Blue Eyes") that she was old enough to judge for herself in such matters, and that, from that time forth, she should do as she thought best in regard to taking part in such amusements or *not* taking part. I even promised that, if she should have cause to regret any thing in such line hereafter, I would be careful not to say even so much as "I told you so." At first there was quite a little excitement over my decision; but when my daughter found that my *sentiments* had not changed—only that I began to recognize that, as she was nineteen years old, and a member of the church, she certainly ought to be able to take care of herself—at least to that extent.

Now, in our household the children have grown up with such pleasant relations between themselves and their parents that I hardly believe any one of them who has attained a majority has ever thought to note the fact, as children sometimes do, by saying to themselves, if not out loud, "Well, to-day I am eighteen;" or, "To-day I am twenty-one," as the case may be, "and therefore I am my own 'boss,' and am not in the future to be ruled over by any one." Well, Constance, after thinking the matter over, concluded that, even if she *were* eighteen, or even nineteen, for that matter, she did not feel any more like disagreeing with her parents, even on a small matter, than she did before. So the question remains just about where it was. Perhaps I might say that the discussion first started because of the fact that, in our town, those who do not dance or play cards, are, at least to *some* extent, ostracized from certain gatherings, by certain classes of society. I do not like that word "ostracized," however, after all; but I do not think of any other that will better express the meaning just now. Sometimes, as a bit of pleasantry, certain ones have said, in discussing parties or other gatherings, "Oh! I forgot. *You* do not go, because your folks won't let you dance or play cards," as the case may be. I do not think that any spirit of malice actuates the young people who make remarks like that; but still it cuts and hurts; and sometimes the young people have felt a little restless under the restraint that making a profession of Christianity seemed to impose upon them. Then, again, a good many will say, "Oh! but Christians *do* dance, and play cards too. Why, some of the very best people in our town, and some who are first in prayer-meetings and in the Endeavor society do both." A little quiet questioning, though, generally reveals the fact that those in question do not dance or play cards very much, or not at all, or else there is some mistake about their being *foremost* in Christian progress.

After some talk of this kind I reached for the family Bible and opened it. When I opened it I began to smile; and when they wanted to know what made me look so pleased, I replied, "Were it possible that I had had time to look at the Bible a little you would be sure that I had selected the very passage that met my eye. But, on the contrary, I did not select it at all. The Bible opened of itself, and the first words that met my eye were these: '*No good thing will he withhold from them that walk uprightly.*'" There was a general smiling all around. By the way, is it not a little strange that the Bible so many times opens to the very thing that it seems you needed? And when we consider how many pages there are in the Bible, and how many texts and promises there are on each page, it *does* seem strange that, out of the thousands, we should get just that one. I presume it were well for us to remember, before we lean too much toward something that might be called superstition, that there are thousands of texts in the Bible that hit a multitude of grand truths, and this is one of them. Now, dear reader, do you believe the statement of our text? Do you believe that those who *persistently* and *continually* "walk uprightly" to the best of their ability will, in the end, lack or lose nothing that is really *good* in the best sense of the word? Sometimes it costs us quite a little to persist in walking uprightly; and there are not a few who really become "weary in well doing." They say, "It does not make any difference how *long* or how *hard* I try to do right. Nobody notices it, and I get no reward for it. I might just as well have a good time with the rest as to be so very particular, and have everybody call me puritanical." Did you ever feel that way? But here is the Bible promise, and it says, "*No good thing.*" I wish I could tell you how many times I have seen this verified. Why, it is not only true in the moral and spiritual world, but it is true in business. I meet it at every turn. Among the old and the young there seems to be coming up this idea that it really does *not* pay to be *good* or to be *honest.* Sometimes when our spiritual advisers or teachers point out a path that seems to be above that of common people, we take a look at it and then say mentally, if not out loud, "Oh, yes! that is all very fine; but I tell you it is tremendously *hard work* to be so self-sacrificing and to take so much pains." Yes, it *is* hard, my dear friend; don't we *all* know it? It seems to me that, if there was ever a person who found it hard to choose the straight and narrow path instead of the broad way that leads to destruction. I am that very one. Yes, in one sense it is *terribly* hard for me constantly "to love righteousness and hate iniquity." Satan once, with a wave of his hand, showed the Savior the whole earth; and he pointed out the attractions of the world. Well, I think he has been doing that way with me all my life. Although some Christians may say the world has nothing to offer, to me it has a tremendous sight to offer—yes, even if I *am* wearing gray hairs and spectacles. I can fully *sympathize* with every child of humanity who finds it hard to turn away from things that are unquestionably not strictly upright. I think I can hear some of you say, "Well, Mr. A. I. Root, I really think you ought to be ashamed of yourself." And you are right. I *am* ashamed of myself every day. I *am* ashamed to think I am *sinful*, and that I have such longings for the ways of sin. You may say, no doubt, "Why, the trouble is, you have not said—at least you have not as yet said so with sufficient vehemence, 'Get thee behind me, Satan.'" Well, I have said it hundreds of times, and I think, too, with a good deal of vehemence. But after I think the old fellow has gone for good, and never means to pester me any more, back he creeps again, and reminds me that I am still *earthy* and still *human*. Sometimes I try to console myself by thinking that it is like Paul's thorn in the flesh, and that, may be, it will help me to have sympathy for others. But how about our text? Why, after all my experience I am every day more and more *thoroughly* convinced that it is true—every word of it. Yes, I am so sure it is true that I have not a moment's hesitation in saying to you, my good friend, that every good thing you can *think of* shall be yours if you will only hold out in "walking uprightly." Let me explain: A young friend of mine is feeling sour and bad because he does not get better wages. I have talked several times with him about it. I told him that those around him got better pay than he did just because they walked more uprightly. He did not feel inclined to accept this explanation—that is, he did not believe that others were better than he.

"Why," said I, "look here. Were you at your post every day last week during working hours?"

He hung his head a little, and admitted that he was not.

"Well, were you at work ten hours every day week before last?"

Again he was obliged to admit that he was not.

"Well, once more. Did you put in a whole week, and were you at your machine every day when the whistle blew, the week before that?"

He said he could not remember so long ago, but he thought quite likely he was not on hand every day. And he then ventured to urge that, if he had a little more wages than he was then getting, so as to make it more of an *object*, he might be on hand more *promptly*.

"Why, my good friend, do you think it would be wise or well to pay a boy more wages than he is earning, simply because he promises to do better *after* he has his pay raised?"

He admitted that it would not, as a rule, be the thing to do. Then I concluded with something like this:

"Now, look here. To-day is Monday. If you will put in one good week, doing as well as you know how to do, and at the same time do it easily, I will advance your pay next Saturday night; and the advance will be in proportion to the amount of improvement you make over these past weeks. And let us bear in mind that one special point where you are lacking is in promptness."

How do you suppose it turned out? Why, the weather was nice and I suppose some of his mates were going fishing. It was in the fore part of the month of May, mind you, and every thing outdoors was attractive and tempting. So he went fishing, and was gone a day and a half, within 48 hours from the time I had my talk with him. Perhaps there are other boys who read these papers, who, like the friend I have spoken of, are very anxious for a "raise." They think they ought to have better pay than they are getting; and may be the reason they do not get it is just because of their lack of punctuality. Suppose you work in a factory. The big engine starts at 7 o'clock. The proprietors have, at great expense, provided steam sufficient to carry your machine and all the rest of the machinery. If you are not there to use it the steam is wasted, and the work you do which they had counted on is not done. May be the man next to you will run out of a job because there is nobody on hand to do *your* part of it. If some one does not bring the boss of the room word, the machine may stand idle, or a new man must be hunted up, and trained on short notice to do your work. After he has got him trained, suppose you come along. Why, in the neighboring town of Akron I understand they *lock the doors* at 7 o'clock, at one of their large factories; and those who are not in their places will have lost their job unless they can make some satisfactory arrangement with their boss to try them again. In our establishment we try to be as easy on our workmen as possible. If some one comes to me, or even to the boss of his room, and says, "Would it be so that I could be spared to-morrow, without putting you to great inconvenience?" he almost always gets leave of absence; then he can go fishing, or where he chooses, far happier than the one who "lights out" without giving a word or suggestion or any sort of hint to anybody.

And finally, dear friends, it occurs to me that almost all the troubles we meet are in some manner or other the consequence of not walking uprightly. Now, you need not ask what you are to understand by the word "uprightly," because we all know exactly what it means—or, at least, with sufficient exactness to earn the promise. Upright men and women! oh what a demand there is for them! Why, they are worth their weight in gold—yea, more than fine gold; and the world has never yet been supplied. If somebody else gets better pay than you do, or if he receives attentions that you do not, you can rest assured that, in a majority of the cases, it is because he has *walked more uprightly*. This walking uprightly is laying the foundation stones for future character. Away long years hence, somebody will want a good man or woman for a particular place, and then comes the review. What has been the record? If the general verdict seems to be, "This boy has been upright, honest, and straight year after year, ever since he has been in our town, and no one ever heard of his doing an unmanly thing," why, the gates to a great future swing out before him; and finally, when the Judge of all the earth shall open that great record, I can imagine the *heavenly gates* swinging wide open as the angels bid him welcome with songs of praise. "Well done, thou good and faithful servant."

GLEANINGS IN BEE CULTURE
A Journal devoted to Bees and Honey and Home Interests
Illustrated Semi-Monthly
36 Pages 7×10
$1.00 Per Year

If thou faint in the day of adversity, thy strength is small. Prov. 24: 10

We notice that the Big Four are having all their cars painted with ocher, or, at least, with a tint made up largely of ocher. When a great railroad corporation recognizes the durability of this paint, bee-keepers may well take a hint.

Bro. Newman, of the *American Bee Journal*, has returned from his vacation, with renewed strength and vigor. Gleanings wishes that he may long be retained at the helm of the *American Bee Journal*, and therefore trusts that he will husband his strength as much as possible.

Complete files of the old *American Bee Journal* are getting to be very scarce. They are most valuable for reference. The time will come when they can not be obtained at any price. It pays bee-keepers, generally, to preserve back numbers of their journals. A record of what has been done is often worth thousands of dollars.

We most heartily indorse Prof. Cook's article on page 360 of the current issue. John H. Larrabee is the right man in the right place, and we sincerely hope that the Department at Washington will retain him, not only for this year, but for years to come. We doubt whether a better man, all things considered, could be found for the position, and we hope that bee-keepers will use their influence in seeing that he is retained.

We are imbedding wires in brood-frames right along now by electricity. It does the work much faster and nicer than any other method we have ever tried. So far electricity has imbedded some six or seven hundred frames, and our folks wouldn't go back to the old way—well, for a good deal. Guess the bees will like it better also. We are at present considering a cheap battery for the purpose, so that all may use the new plan.

For the past seven or eight issues we have been giving our readers eight extra pages, and in addition to this an extra number of engravings. Although this costs us a good deal more, we charge no more for it, and are satisfied with the "sticktoitiveness" of our subscribers. During the busy days of early spring and summer, bee-keepers do not have time to read much; and if they can get an idea by a single glance at an engraving, it will save them much time and trouble, and add materially to their knowledge of apicultural doings.

Samples of pure orange-blossom honey have been sent us from Florida. The flavor is superb, and reminds one strongly of a delicious orange, with the added quality of the rich oily taste of honey. If consumers knew more of its fine qualities, they would pay a big price for it; in fact, we are not sure but it would be regarded by the best connoisseurs as the most exquisitely flavored honey in the world. The bee-keeper who has several thousand pounds of orange-blossom honey, in flavor equal to what we have sampled, is fortunate. But in order to get the *right* price he ought to submit samples of it to consumers direct, and then ask them what they will pay for it.

We have been experimenting a little with the Doolittle solar wax-extractor. We have observed that, while the wax would be melted, and run down into the tin pan, the surface of the glass would be quite cold, from the influence of the outside temperature. We then tried sash having two glass in, and we found that the temperature in two extractors, side by side, one having double glass and the other single, each having inside carefully tested thermometers, was ten degrees higher in favor of the double-glass sash. We tried the experiment at different times of the day, and the readings of the thermometers would show for the same minute a difference of ten degrees. J. A. Green will perhaps remember, that, several years ago, we held the position, in opposition to him, that a single glass was preferable. Well, now we will back down completely. Although it costs a little more, we send out all our Doolittle wax-extractors with double glass.

In September last we introduced to a rather weak colony a Punic queen; but it was too late to say much regarding the character of the bees that subsequently hatched out. We find this spring that they are doing finely. The queen is very prolific, and the bees behave very much like Italians; in fact, they resemble them in many respects, except in the conspicuous absence of the yellow bands. They look different from the Carniolans and also from the common blacks. We believe it has already been intimated that the Italians and Punics are descended from a common ancestry. The fact that their original homes are not so very far apart, and that they are alike in disposition and general temperament, may make this possible. However, we will not offer any more surmises until we test the Punics more fully. Now, please don't ask us to furnish Punic queens. We can not rear the two races in their purity in one locality; and until we know some other race more favorably we shall stick to the original three-banded Italians.

GLEANINGS AND PATENTS.

Henry Alley wants to know where we stand on patents. It must be that our co-laborer in apicultural journalism has neglected reading very carefully of late the editorial department of Gleanings. Whatever may have been our position, we recognize, and are glad to encourage, all useful patented inventions; but it makes us tired to see would-be bee-keepers, with little or no knowledge of bees, or the past literature relating to them, rushing ahead and patenting sundry and worthless articles. We advise every one who contemplates getting out a patent in the line of apiculture, to consult confidentially two or three practical and well-informed bee-keepers with reference to the value of the invention. If they say go ahead, then take out a patent if you can afford it. Some of our readers seem to be in the dark with regard to the way that we regard patents. We are at present paying a royalty on two patents, and expect to negotiate for the use of another invention, also patented. Now, then, some of you will ask, "Why don't you patent some of your own appliances, and thus secure to yourself the exclusive right to manufacture?" There are very few, if any, of the devices we manufacture that we consider patentable; and, besides, as bee-keepers have been generous to us, we feel that we can afford to give in return, and let others manufacture if they so desire. We still own no patents on supplies, and do not expect to.

It begins to look as if the Paddock pure-food bill, now before Congress, would fail to become a law. It is being vigorously assailed by some of the papers as being "unjust to inventors and manufacturers." The National Dairy Association, the National Association of Druggists, and we might almost include the National Association of Bee-keepers, all demand it. The opponents of the bill seem to recognize that, if they could only make out that it is a partisan measure, they would be able to kill it, and we fear that they are going to be successful. It is no more partisan, in our estimation, than a bill to repair a levee on the Mississippi River would be. Of course, those who are engaged in the mixing or adulterating business will oppose it with all their might and great capital; and, taking these two elements together, it begins to look now as if the bill would fail to pass.

FOUL BROOD: THE CHESHIRE VS. THE STARVATION PLAN. S. CORNEIL'S CRITICISMS.

On page 6 of the *Canadian Bee Journal* for April 1 appears an article entitled "Foul Brood and its Treatment," by S. Corneil. Friend C. criticises both our *methods* of curing the disease, and the *conclusions* at which we arrived after experimenting and testing the various remedies. First, he can not understand *why* we abandoned and ceased to recommend the phenol or carbolic-acid treatment when we had several times declared in favor of it as an antiseptic in our earlier reports. We will admit that our first utterances respecting the acid treatment are somewhat at variance with our later statements. This is easily explainable, because our knowledge was progressing; and what we first thought to be true we later concluded was incorrect. All first impressions are not liable to be as accurate as those received later. We *first* thought the acid answered as a check to the further spread of the disease; but *later*, when the field of our observation and experimentation had greatly increased, and our knowledge of what others had done had been extended, we changed our mind. We haven't the time or space to make numerous quotations, as our critic has done, nor to go into the details affecting this belief, but may give one of them. Toward the latter end of our experiments with phenol, and its effect on foul brood, it so happened that Prof. Sargent, of the Michigan Military Academy of the Department of Sciences, was home on a vacation. We explained to him the nature of foul brood, and added that it was due to a small microbe, *bacillus alvei*. Having at his disposal a very fine microscope, and a $\frac{1}{12}$-inch immersion lens, he readily found the *bacilli* in samples of affected brood which we submitted to him. To make a long story short, he prepared "pure cultures" in a series of test-tubes. Some of these he inoculated with *bacillus alvei*, and allowed them to grow and multiply, which they did very readily under sterilized cotton. Into these were then introduced a solution of phenol, of the strength recommended by Cheshire. The acid had no effect whatever, as other tubes could be inoculated from the phenolated tubes, and the microscope revealed in each case the growing bacilli.

Mr. Corneil may challenge the correctness of these experiments of Prof. Sargent; but as they dovetailed nicely with our own experiments in the apiary, I can not think that phenol did much real good, if any, with our bees. If Mr. Corneil will consult a recent bulletin by Prof. Cook he will see that the professor and his associates quite independently came to the same conclusion that we did respecting carbolic acid or phenol.

Our critic says we did not use the Cheshire plan exactly as Cheshire recommended. While we admit that, we thought we did in a practical way; but in view of the failure of the acid to kill the *bacilli* in the test-tubes, and in view of the corroborative testimony of no less an authority than Prof. Cook, besides scores of reports from practical bee-keepers, testifying to the failure of the acid (whose exact statements we haven't time to look up and quote verbatim), we must still insist that our faith in phenol is still weak. However, in spite of all this we *might* be mistaken in our conclusion; and hence, if another opportunity should present itself we would test the acid exactly *a la* Cheshire.

We have run across a few reports—yes, a very few—where carbolic acid cured foul brood. We have also seen reports where *salt water* cured it, and a dozen other simple remedies. In some of these cases we are sure there was no foul brood, and that the apparent disease simply went away. We find there are some very crude ideas regarding foul brood and what it looks and smells like, and hence supposed cures are no cures at all.

So far as we can learn, Mr. Corneil has never had any practical experience with foul brood—at least, not to any great extent; and, although a close student, and a correspondent whose writings we read with pleasure, we think that, if he would mix a little practical experience with the disease with which he is dealing, he *might* modify his opinion also. At all events, it is a pretty safe thing for us to recommend for treating foul brood what we have tried and know to be a safe cure, rather than something we are skeptical about, and we imagine that D. A. Jones will agree with us.

PROF. H. W. WILEY AND ADULTERATED HONEY; IS IT A CASE OF OFFICIAL INCOMPETENCY AT WASHINGTON?

Bulletin No. 13, of the United States Department of Agriculture, entitled "Foods and Food Adulterants," by H. W. Wiley, Chief Chemist, has recently been laid upon our table. It relates to the adulteration of sugar, molasses, honey, and wax. Prof. Wiley, it will be remembered, is the author of what Mr. Newman appropriately calls the "Wiley lie." Years ago he wrote an article for the *Popular Science Monthly*, stating in all seriousness that comb honey was successfully manufactured, filled with glucose, and capped over by appropriate machinery. The professor was called upon to retract by bee-keepers all over the land; and finally, years afterward, he admitted that his article in the *Popular Science Monthly* was only a "scientific pleasantry," and that he had no idea it was possible to manufacture *comb* honey. Well, now, in the bulletin above mentioned, page 744, the same chemist says:

"Many samples of comb honey containing only glucose have come under my observation. But in all these cases, the comb, presumably after the separation of the honey by a centrifugal machine, was evidently placed in glassed bottles, and the glucose then added. I have never yet found a sample of comb honey sold in the frames which was artificial, except in the use of comb foundation." Here we have the professor down in plain black and white; and why couldn't he have been candid enough to give utterance to a similar statement years ago?

Now, instead of attacking bee-keepers on the score of *comb* honey, he and his associates have struck out on a new line; and that is, pronouncing, by chemical analyses, that nearly all liquid honey is adulterated.

Professor W., it seems, appointed seven or eight chemists to analyze each some fifty samples of honey. These analyses are all numbered and tabulated, in the report before us, with the name and address of the persons putting up the sample. The tables themselves are not very definite to the mind of the average bee-keeper, because only a chemist can make out what they mean; but there are some things that every one can understand. It seems that some samples of honey were obtained from Charles F. Muth, a bee-keeper and commission merchant of integrity, and who, as is well known, is entirely above the disreputable business of adulterating honey. As we stated, all the samples are numbered, and we will quote a few of them. No. 104, page 788, reads:

"Pure machine-extracted honey, from the Italian apiary of C. F. Muth, contains fully 50 per cent of adulterant. The machine alluded to in the label is doubtless the converter by which corn starch is changed into glucose in Buffalo and other places."

Again we quote:

"No. 126, labeled 'Muth's California Honey,' is almost pure glucose."

And again:

"No. 127 is warranted pure honey, put up by C. F. Muth & Son. It is nearly half glucose."

And still again:

"No. 149 is another illustration of adulterated honey bearing the label of C. F. Muth & Son;" and so on through the several pages of numbered samples from different commission houses, the honey is branded as "adulterated." But the strangest thing about it is, that some of the scamps whom we feel sure are adulterating, are counted as selling pure goods. C. F. Muth's name as a honey merchant and a bee-keeper is above reproach. No man has done more than he to fight the adulteration of honey, and he is the very last one in the whole trade who could be pravailed upon to enter the disreputable business. We can say with almost a certainty, that every sample of honey that goes out of C. F. Muth's establishment is absolutely pure—at least, if adulterated it was not done while in his hands; and he has been too long in the business to be fooled with honeys that are not pure.

To show you how thoroughly incompetent Prof. Wiley is in his methods of analysis, we will state that Charles F. Muth some time ago sent him samples of pure honey, just as it was taken from the hive, asking him to make a chemical analysis. Professor Wiley did so, and announced that *all* were adulterated. This alone is enough to show that the methods which the chief chemist in the Department of Agriculture and his associates have adopted are exceedingly faulty. As Prof. Cook has so ably shown, honey does contain natural glucose; and pure honeys will show many if not all of the chemical reactions found in adulterated goods. In view of this, Prof. Wiley and his associates have called down upon themselves the reproach of the whole bee-keeping world; and at a large expense to the government have given us a report (so far as it relates to honey) filled with error and absurdity. Professor Wiley has once before, by virtue of his high office, done bee-keepers an irreparable damage by his falsehood in regard to manufactured comb honey; and then when cornered he slyly slipped out of it by saying that it was a piece of "scientific pleasantry." If not malicious, as we hope he is not, we deem him thoroughly incompetent to analyze or direct about analyzing honey.

As we have said before, we do not deny that extracted honey is adulterated to some extent; but we do deny that nearly all liquid honey upon the market is glucosed, as this report tries to make us believe. The truth is bad enough; but when it is turned into a falsehood, we "kick."

IF YOU WANT BEES

That will just "roll" in the honey, try Moore's strain of Italians, the result of 13 years' careful breeding. T. J. Moffitt, Kemps Mills, N. C., says: "They beat any thing I ever saw in the bee line. They are certainly 'rolling' in the honey now; one of them beats three of my others at work. I would not take $5.00 apiece for the queens. They seem very gentle." Prices: Warranted queens, in June, $1.00 each; 3 for $2.50. Tested queens in May, $2.00 each; select tested, $2.50. Circulars free. 8d

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The Lone Star Apiary Sells Golden Honey Queens at the

FOLLOWING LOW PRICES:

Untested, before June 1, $1 00; after, 75c. Tested, before June 1, $1.50; after June 1, $1.00. Safe arrival and satisfaction guaranteed. I breed a fine five-banded strain of Italians. Send for my price for 1892, and get prices on nuclei and full colonies. Cheaper than ever before known. Write for prices on large orders.

OTTO J. E. URBAN, PROP.,
THORNDALE, TEXAS,

☞In responding to this advertisement mention GLEANINGS.

ALWAYS ON TOP

Our Golden and Leather Colored Italian Queens.
Bred for Business.

Tested, in June, $1.25; untested, 75c; 3 for $2.00. Our stock consists of 300 colonies devoted to bees and queens for the trade. **Orders filled by return mail.** Send for catalog of supplies, etc.

JNO. NEBEL & SON, High Hill, Mo.

P. S.—A. J. Fields, of Wheaton, Ind., writes: "The queen and bees received of you last spring made 147 lbs. of comb honey, and took first premium at three fairs." 8tfdb

☞In responding to this advertisement mention GLEANINGS.

ELLISON'S FINE ITALIAN QUEENS and Bees.

PRICES FOR MAY.

1 untested queen	$1.00
3 " "	2.50
1 tested queen	1.50
3 " "	4.00
Select Tested, each	3.00

Two-frame Nucleus with any queen, $1.50 each extra. Safe arrival guaranteed. **W J. ELLISON,** 10d
Catchall, Sumter Co., S. C.

☞In responding to this advertisement mention GLEANINGS.

The queen I got of you has more brood than any colony I have. A. MILLER, Trail, O.

Our Five-Banded Italians

Are the bees for business: gentle, and beauties.

FREE! The Amateur Bee-keeper, 52 pages; price 25c; one given free each day to the one sending the most money for queens. One warranted queen in May, $1.10; 6 for $5.50. June, $1.00 each; 6 for $5.00. Entire satisfaction guaranteed. 1-24db

S. F. & I. TREGO, Swedona, Ill.

☞In responding to this advertisement mention GLEANINGS.

Beautiful! Gentle! Prolific!

The Five-Banded Golden Italian Bees.

Send 5c for sample of bees and be convinced. Catalogue free. One queen, June or July, $1.00; six, $5.00.

J. F. MICHAEL,
8-13db **GERMAN, DARKE CO., OHIO.**

In responding to this advertisement mention GLEANINGS.

DR. J. W. CRENSHAW, Versailles, - Kentucky,

Offers for Sale·

Untested Italian Queens at $1.00 each through May and June; after, 75c each. Safe arrival guaranteed. Queens raised only from Imported mother. Drones only from selected and tested mothers.
Also CELERY PLANTS from July to September, at $2.00 per M. 7-18db

☞In responding to this advertisement mention GLEANINGS.

Good Queens Cheap.

300 tested Italian queens, raised last season, for sale at $1; $10 per doz. A few hybrids at 25c each. They will be shipped about June 15th to 25th, or later if desired. Have order booked now and send money when you want them. My bees have been *BRED FOR BUSINESS*, and these are bargains. Nuclei and full colonies at very low rates.

J. A. GREEN, Dayton, Ill.

☞In responding to this advertisement mention GLEANINGS.

WHY, YES, EVERYBODY KNOWS that it pays to purchase their HONEY-COMB FOUNDATION at C. W. PHELPS & CO.'S Wholesale and Retail Foundation Factory. They sell heavy for Brood, 45c.; thin for Comb Honey, 55c. They deal in all kinds of Apiarian supplies. Their customers are always pleased, for their work is good and prices reasonable. Send for free samples Foundation and price-list of Bee supplies. Address C. W. PHELPS & CO., 74 Pettit street, Binghamton, N. Y.

TAKE NOTICE!

BEFORE placing your orders for SUPPLIES, write for prices on One-Piece Basswood Sections, Bee-Hives, Shipping-Crates, Frames, Foundation, Smokers, etc.
PAGE & KEITH,
14tfdb New London, Wis.

Please mention this paper.

J. C. SAYLES,

HARTFORD, WIS.,

MANUFACTURES APIARIAN SUPPLIES OF EVERY DESCRIPTION. CATALOGUE FREE TO ALL. SEND YOUR ADDRESS.

3tfdb Please mention this paper.

Bee-Keepers' Supplies.

Hives, Honey-Cases, Sections, and Frames. We are the only concern in Southern California who make a

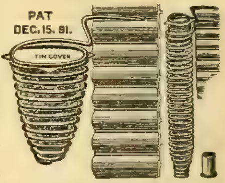
SPECIALTY OF BEE-KEEPERS' MATERIAL.

Agents for the white basswood 1-lb. sections. Send for catalogue and price list.
6-13db **Oceanside Mill Co., Oceanside, Cal.**

☞In responding to this advertisement mention GLEANINGS

CONTROL YOUR SWARMS!

N. D. WEST'S SPIRAL WIRE QUEEN-CELL PROTECTORS AND CAGES.



N. D. West's Spiral Wire Queen-Cell Protectors will do it, and you can RE-QUEEN your apiary during the swarming season. Pronounced the Best by such men as CAPT. J. E. HETHERINGTON, Cherry Valley, N.Y.; P. H. ELWOOD, Starkville, N. Y., and others. Cell-Protectors, $3.00 per 100, or 12 for 60c, by mail. Cages, $5.00 per 100, or 12 for $1.00, by mail. Samples of both, with circular explaining, 25 cts. The cages are used for hatching queens in any hive, and are the Best Bee-Escape in use. Address 8-9-10d

N. D. WEST, Middleburgh, Schoharie Co., N. Y.

Please mention this paper.

Bees For Sale.

COLONIES,
NUCLEI,
AND QUEENS,

at living rates. Send for circular and price list to

C. C. VAUGHN & CO.,
Columbia, Tenn.

In writing to advertisers please mention this paper. 5-10db

Muth's Honey-Extractor.

Square Glass Honey-Jars,
Tin Buckets, Bee-hives.
Honey-Sections, &c., &c.
Perfection Cold-Blast Smokers.

APPLY TO
CHAS. F. MUTH & SON, Cincinnati, O.

Send 10-ct. stamp for "Practical Hints to Bee-keepers."
Please mention this paper.

PRICE LIST OF BEE-HIVES.

	8-fr'me. 1½-st'y.	10-f'me. 1½-st'y.	8-fr'me. 2 st'y.	10-f'me. 2-st'y.
In lots of 5	72c	82c	87c	97c
In lots of 10	69	79	34	94
In lots of 25	60	70	75	85
In lots of 50 .. .	58	68	73	83
In lots of 100 ...	57	67	70	80

The reason we can sell so cheap is that lumber is cheaper in Minnesota than any other State in the U. S. The above prices are for Dovetailed, Simplicity, and three other styles. Send for catalogue.

F. C. ERKEL, LeSueur, Minn.

Please mention this paper.

Engine and Boiler For Sale.

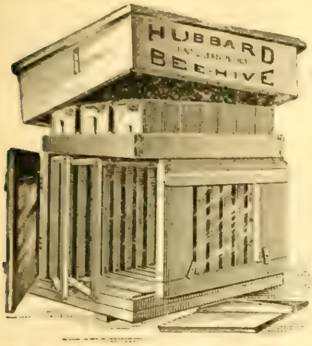
A six-horse upright engine and a ten-horse horizontal steel boiler. They are both complete and in fine condition; have been used only about six months. Boiler arched in. Both are W. B. Dunning's make, Geneva, N. Y.

Also an 18-inch Feed-Mill, French buhr, of A. W. Stevens' make, Auburn, N. Y. Sheller, Elevator, Shafting, Belting, Pulleys, and a fine lot of Simonds saws, cut-off and rip, from 5 inch up to 18. Two Vandervort Foundation Mills, 6 and 12 inch, steam melting-apparatus, etc. The whole outfit is nearly new, and in fine condition. Will be sold at a bargain. Write for particulars.

G. W. BALEY & SON,
9tfdb **Ovid, Seneca Co., N. Y.**

Please mention this paper.

HUBBARD BEE HIVE AND SECTION PRESS.

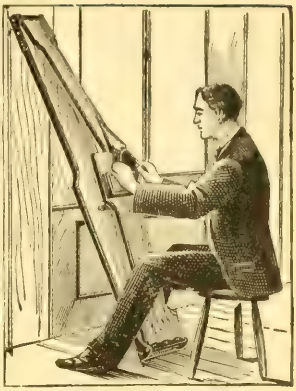


If you want to handle bees **easy** by sitting down to it, here is the hive. Frames fixed and variable distance combined. No wrenching or prying or scraping of combs together. Many thousands in use giving excellent satisfaction.

Live Agents make Splendid Profits.

Large Circular of 20 pages free.

This **SECTION PRESS** (Pat'd) is sold at **$2.50** by the leading supply dealers. Ask them for it or send to me. A boy can put together 800 to 1000 sections an hour and have them **true.** Bend section around, put in press, give a little push—'tis done. Will last a life-time and is bound to please you.



Send for my Circular about Hive, Press, Foundation Fastener, Sections, Foundation, Italian Queens, Extractors, Veils, Honey Crates and Cases, &c. &c. It will interest you. Or send **15 cents** for Practical Book for Beginners—**"First Principles in Bee Culture."** 11th thousand just issued.

G. K. HUBBARD, 277 Harrison St., Fort Wayne, Ind.

3-10db ☞In responding to this advertisement mention GLEANINGS.

BEES **350 COLONIES OF BEES. 1,000,000 Sections. HIVES, Smokers, QUEENS, etc. Send for price list to E. T. FLANAGAN Box 783, Belleville, Illinois.**

SUPPLIES. Langstroth Bee-hives, and every thing needed in the bee yard; 30-page catalogue free. **"BUSY BEES,"** a book telling how to manage them, 10 cents in stamps. **WALTER S. POUDER,** 5-12db
175 E. WALNUT ST., INDIANAPOLIS, IND.

$1.00. READY TO MAIL. $1.00.

My Golden Italians are "Hustlers." Untested, six for $4.50; dozen, $8.00. Tested, $1.50; three for $4.00. Select for breeders, $2.00; very choice, $3.00. Safe arrival and satisfaction guaranteed. Make P. O. payable at Daytona, Fla.

JOHN B. CASE, Port Orange, Vol. Co., Fla.

☞In responding to this advertisement mention GLEANINGS.

Down Go the Prices! Must Be Sold!

100,000 No. 1 One-Piece Sections at $3.00 per M.
In 5000 Lots, - - - - - $2.80 per M.

Fifty Colonies of Italian Bees; 1 Colony, $6.00; 5 Colonies, $5.00 each. Tested Italian Queens in May, $1.50 each. Untested, $1.00 each. Hybrids, 75c each. Comb Foundation and a full line of Apiarian Supplies. Twenty-page price list free.

J. M. KINZIE,
9-12db **Rochester, Oakland Co., Mich.**

☞In responding to this advertisement mention GLEANINGS.

PUNIC BEES UNTESTED QUEENS from the original and only imported stocks in the country; *$2.00 each.* Pratt's swarmer, by mail, 60c; 2 for $1.00. **E. L. PRATT,**
9-12db **Beverly, Mass.**

Please mention this paper.

BEES FOR SALE.

25 Colonies Italians, 100 Colonies Hybrids and Blacks.

All on Simplicity frames. State what you want and write for prices to

GEO. E. HILTON, Fremont, Mich.

Please mention this paper.

SAVE MONEY.—Send to J. P. H. Brown, Augusta, Georgia, for his price list of supplies. Hives and foundation at wholesale rates. 4tfdb

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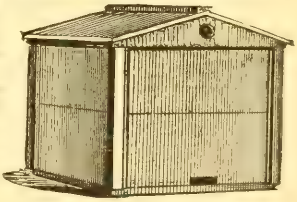
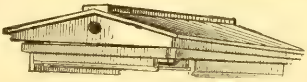
Great Crash in Prices!



From 10 to 25 % discount from former prices. My 40-page catalogue for 1892 gives reasons. I offer a new-style chaff hive at one-half the cost of other styles, and just as good. This hive can be taken apart almost instantly, and packed up in small space. It can be used on any hive (see cut). Don't fail to get my 32d annual price list. I mean business, and am bound to sell as good as the best, and at equally low prices.



Address **WM. W. CARY,**
6tfdb **COLERAINE, MASS.**

Please mention this paper.

VIOLINS GUITARS MANDOLINS MURRAY & HEISS. CLEVELAND OHIO. CATALOGUE FREE. MUSICAL GOODS OF ALL KINDS.

☞In responding to this advertisement mention GLEANINGS.

PERSONS WANTING APIARIAN SUPPLIES

Would do well to send to W. E. CLARK, Oriskany, Oneida Co., N. Y. Send for illustrated price list. Dealers should send for Dealers' list for Smokers. 6-12db

☞In responding to this advertisement mention GLEANINGS.

A POULTRY BOOK Called "The Chicken Business, and How to Make it Pay." Tells all about it. Finely illustrated, practical, and original. Price 50 cents, postpaid. An illustrated circular free, giving particulars about the book, and prices of pure-bred fowls and eggs for sale by the author. 4tfdb

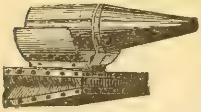
H. B. GEER, Nashville, Tenn.

☞In responding to this advertisement mention GLEANINGS.

BEE-HIVES AND SUPPLIES.

Send for catalogue free. Address **SAMUEL JONES.** Highland Park College, Des Moines, Iowa. 9-10d

✣BEST ON EARTH✣



ELEVEN YEARS WITHOUT A PARALLEL, AND THE STANDARD IN EVERY CIVILIZED COUNTRY.

Bingham & Hetherington
Patent Uncapping-Knife,
Standard Size.
Bingham's Patent Smokers,
Six Sizes and Prices.

Doctor Smoker,	3½	in., postpaid	$2.00
Conqueror "	3	" "	1.75
Large "	2½	" "	1.50
Extra (wide shield)	2	" "	1.25
Plain (narrow ")	2	" "	1.00
Little Wonder,	1¾	" "	65
Uncapping Knife			1.15

Sent promptly on receipt of price. To sell again, send for dozen and half-dozen rates.

Milledgeville, Ill., March 8, 1890.
SIRS:—Smokers received to-day, and count correctly. Am ready for orders. If others feel as I do your trade will boom. Truly, F. A. SNELL.

Vermillion, S. Dak., Feb. 17, 1890.
SIRS:—I consider your smokers the best made for any purpose. I have had 15 years' experience with 300 or 400 swarms of bees, and know whereof I speak. Very truly, R. A. MORGAN.

Sarahsville, Ohio, March 12, 1890.
SIRS:—The smoker I have has done good service since 1883. Yours truly, DANIEL BROTHERS.

Send for descriptive circular and testimonials to
7tfdb **BINGHAM & HETHERINGTON, Abronia, Mich.**
☞In responding to this advertisement mention GLEANINGS.

ITALIAN QUEENS FOR SA

The finest honey-gatherers in the land. [illegible], $1.50 each. Select tested, $2.00 each. Untested, 1.00 each, or $9.00 per doz. Queens ready to ship by April first. I guarantee safe arrival and satisfaction, by mail. Orders booked now and pay when you want queens.

J. W. TAYLOR,
4tfdb **Ozan, Ark.**
☞In responding to this advertisement mention GLEANINGS.

Climax

BERRY CRATES and BASKETS. Indorsed by all leading berry growers as The BEST. Also Gift Packages, Grape, Peach and other Baskets. Prices low. Illus. Catalogue Free.

DISBROW MFG. CO., ROCHESTER, N.Y.
☞In responding to this advertisement mention GLEANINGS.

SECTIONS.

Snow-white Sections,
Cream Sections,
No. 2 Sections.
Finest goods made.
We have a large stock on hand, and can fill small and large orders promptly.

G. B. LEWIS CO.,
Watertown, Wis.
Please mention this paper.

ITALIAN QUEENS.

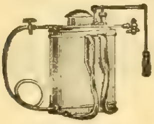
Untested, 85 cents. Tested, $1.25. Special terms for large orders.

H. FITZ HART,
6tfdb **Avery, Iberia Parish, La.**
☞Please mention GLEANINGS.

DOVETAILED HIVES, SIMPLICITY HIVES,

SECTIONS, EXTRACTORS, ETC.
A FULL LINE OF
BEE-KEEPERS' SUPPLIES.
60-PAGE CATALOGUE. 1tfdb

J. M. JENKINS, WETUMPKA, ALABAMA.
☞In responding to this advertisement mention GLEANINGS.



SPRAY YOUR FRUIT TREES AND VINES

Wormy Fruit and Leaf Blight of Apples, Pears, Cherries, Grape and Potato Rot, Plum Curculia prevented by using **EXCELSIOR SPRAYING OUTFITS.**

PERFECT FRUIT ALWAYS SELLS AT GOOD PRICES. Catalogue showing all injurious insects to Fruits mailed free. **Large stock of Fruit Trees, Vines, and Berry Plants at Bottom Prices.** Address **WM. STAHL, Quincy, Ills.**

24-10db
☞In responding to this advertisement mention GLEANINGS.

ROOT'S GOODS FOR THE EAST.

Bee-Keepers of the East should

Bear In Mind that we have established at Syracuse an **Eastern Branch**

where our Bee-keepers' Supplies are kept for sale, and prompt shipment. You can save time and freight by ordering from our Eastern Branch. We have engaged Mr. F. A. Salisbury to take charge of this business, and he will treat you well. He will be pleased to send you a list of goods kept in stock.

Address all orders,

EASTERN BRANCH, F. A. SALISBURY, Agent, Syracuse, N. Y.

I am Pushing Ahead!

And am so far in the lead that I challenge any one to show up superior bees to my best

Five-Banded Golden Italians.

Large, beautiful, gentle, and good honey-gatherers; the results of 10 years' careful breeding. Try them. Satisfaction guaranteed. Queens in May, $1.25 each; 6 for $6. After June 1, $1 each; 6 for $5. For full particulars, send for descriptive circular.

CHAS. D. DUVALL, Spencerville, Md. 7tfdb

☞In responding to this advertisement mention Gl.

BEESWAX!

Foreign and domestic. Crude and refined.
A stock constantly on hand.
Write for prices, stating quantity wanted.

ECKERMANN & WILL, Syracuse, N. Y.

☞In responding to this advertisement mention GLEANINGS

FREE! My new price list of **Pure Italian Bees, White and Brown Leghorn Chickens, White and Brown Ferrets, and Scotch Collie Pups.** Address
N. A. KNAPP, Rochester, Lorain Co., O.
8tfdb

---

500 Colonies of Bees Devoted to Queen-Rearing.

Write for prices on large quantities.

TWO MILLION SNOW-WHITE SECTIONS.

Write for prices on large quantities.

Send for our 24-Page Catalogue of Dovetailed Hives, Smokers, Extractors, Etc.

LEAHY M'F'G CO., Higginsville, Missouri.

Please mention this paper. 5tfdb

SECTIONS.

$2.50 to $3.50 per M. Bee-Hives and Fixtures cheap. **NOVELTY CO.,**
6tfdb **Rock Falls, Illinois.**

☞In responding to this advertisement mention GLEANINGS

POLISHED

One-Piece Sections Our Specialty.

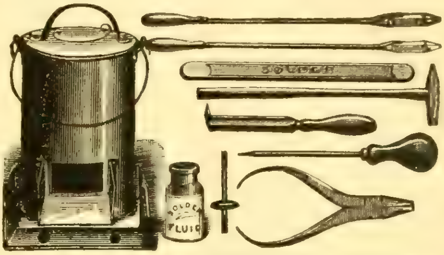
I challenge comparison of my goods with those of any other make on the market. If, upon fair trial, they are not found superior to, and cheaper than, any makes of so-called snow-white, premium, sandpapered, etc., sections, the goods will cost you nothing, and you are invited to publish me as a fraud.

I can fill orders promptly for any width at $2.75 per M.; or $2.50 per M. in 5000 lots at factory at Wauzeka, Wis. Other supplies shipped from Capac, or Evart, Mich. Sections from these points 25 cts extra per M.

8tfdb Address **B. WALKER, Capac, Mich.**

Please mention this paper.

OATMAN'S SOLDERING AND REPAIR KIT



Consists of fire-pot, two copper soldering irons, bar of solder, soldering fluid and brush, all-steel scraper, hammer, scratch-awl, and plyers, as shown in the cut. Any one purchasing this outfit will get full directions, which will enable him to repair tin, copper, brass, metals, and iron; also how to keep the soldering-irons in order. Whole kit, boxed, 12 lbs. Shipped on receipt of $2.00. Agents wanted. Reference, A. I. Root.

O. & L. OATMAN, Medina, Ohio.

Mention this paper.

FOR SALE.

50 colonies of Italian bees in A. I. Root's 8-frame Dovetailed and Langstroth's 10-frame hives, at five dollars per colony. A liberal discount for more than one colony. Safe delivery guaranteed. 8-11db

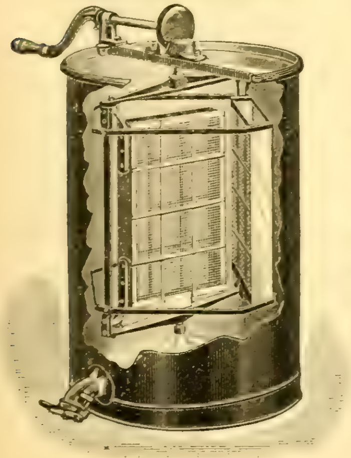
JOHN GRANT, Batavia, Ohio.

MARTIN'S PROLIFIC BUCKWHEAT.

Same kind as advertised last year in GLEANINGS. On my sandy soil it yields double the quantity per acre as Japanese. Gives excellent satisfaction. $1.00 per bu., cash, on board cars here, sacks included.

WM. MARTIN,
8-11db **Highland, Oakland Co., Mich.**

A Grand Success.



New Cowan Reversible
Honey-Extractor.

Read what Frank McNay and J. F. McIntyre say of it in this issue.

Strong, well made in every respect, light, and of convenient size. The can is but little larger than that of the Novice. The gear is beveled, and covered by an iron shield as shown in the cut. Though not automatic, the two baskets can be operated about as rapidly.

Price all complete, japanned and lettered, for L. frame, $12.00.

A. I. ROOT, Medina, Ohio.

PUNIC QUEENS

FROM IMPORTED MOTHERS. Each, $2.00. This is a fine race of bees, and will give better results than any other race or strain. Ready to mail May 25.

HENRY ALLEY, Wenham, Mass.

FOR SALE.—100 acres of land, 60 in cultivation, the rest timber; log house, good well, barn, corn-crib, and other buildings; 900 apple-trees, 100 peach-trees; cherry, plums, grapes, and other small fruit, which is 4 years old; and a good location for bees. Inquire for particulars. Price $1500.

10d **J. HULSE, Waco, Cleburne Co., Ark.**

Wants or Exchange Department.

Notices will be inserted under this head at one half our usual rates. All advertisements intended for this department must not exceed five lines, and you must SAY you want your adv't in this department, or we will not be responsible for errors. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To trade a large lot of Heddon hives, nicely made and good as new; some with combs complete for honey, now or after crop of '92. Write for particulars. Address D. S. HALL,
2tfdb South Cabot, Vt.

WANTED.—To exchange brood-foundation, at 40c per lb., or light for the boxes at 50c per lb., for wax at 30c. per lb. B. CHASE,
7tfdb Earlville, Madison Co., N. Y.

WANTED.—To exchange choice Carniolan and Italian queens for supplies. 8-9d
F. A. LOCKHART & CO., Lake George, N. Y.

WANTED.—To exchange for bees, 1000 brood and extracted combs, 6 and 10 inch foundation-mills, dipping-board, etc., shotgun and Safety bicycle, write to me. B. W. HOPPER,
9-10d Box 224, Garden City, Kan.

WANTED.—To exchange for any thing useful on the farm, Canary birds, fine singers, raised from imported stock. B. GEISSLER,
9-10d Basco, Hancock Co., Ill.

TO exchange.—Bee-hives for beeswax. 9-12db
WM. IDEN, Etna Green, Ind.

WANTED.—A man to care for stock, bees, and fruit-trees, on shares, in the Indian Territory. For further information apply to
10-11-12d MR. L. C. AXTELL, Roseville, Ill.

WANTED.—To exchange pure Italian queens, 3 or 5 banded. Write what you have to exchange.
F. C. MORROW, Wallaceburg, Ark.

TO exchange.—For wax or cash, Standard L. or Heddon N. H. combs, at 5c each. Combs all worker, and in good order. H. D. BURRELL,
10d Bangor, Mich.

WANTED.—To exchange one Joliet Safety bicycle, high grade, latest pattern, ball bearings, diamond frame, cushion tires, nearly new; one 49-inch Columbia, best high wheel made, good as new, very cheap; one Odell typewriter; 150 good second-hand hives for L. frame; one extractor for L. frame, for wax, honey, supplies, or offers. 10tfdb
J. A. GREEN, Dayton, Ill.

WANTED.—By young man of 20 years, a position in apiary in Ill., Wis., or Mich. Wages, $20 per month, board and washing included; have had 4 y'rs experience. Address APIARIST, Box 258, Mt. Erie, Ill.

TO exchange.—20 acres; 10 in alfalfa, remainder gardened, under irrigation; adjoins Garden City, Kansas. Country rapidly seeding to alfalfa; GLEANINGS, Vols. '81 to '91 inclusive; *Am. B. Jour.*, Vols. '78, '79, '82, '83, '85. What am I offered? 10d
H. L. GRAHAM, Grandview, Iowa.

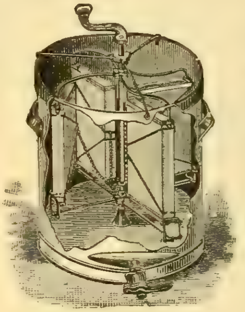
FOUNDATION. Brood, 38c; Thin, 48c; closing out, but small stock left. Also 20 acres fine land (see Ex. Col.) at a bargain, for cash.
10-11d H. L. GRAHAM, Grandview, Iowa.

PURE ITALIAN QUEENS.

Tested queens, $1.25; untested, 75c; safe arrival guaranteed. **MISSES S. & M. BARNES, Piketon, Ohio.**
10-11d

Stanley Automatic Reversing

HONEY-EXTRACTOR.



As announced in a late number of GLEANINGS, we have leased from G. W. Stanley the right to make his automatic extractor, and we bought from E. R. Newcomb his stock of materials and machines unsold. This stock consists of about twenty-five machines, two and four frame. To work it off quick, and give us a chance to put out machines of our own make, we offer these machines as long as they last, at one-fourth off old prices. We will sell the two-frame machines as they are for $9.00; the 4-frame for $15.00. They are crated ready for shipment, with crank direct on the center-shaft. We will attach our new horizontal gear, as shown on page 14 of our catalogue, for $3.00 each extra.

A. I. ROOT, Medina, Ohio.

PAINT FOR BEE-HIVES.

After much experimentation, and a careful study into the paint question, we offer a mixed

Paint Prepared Especially for Bee-Hives.
It will not Chalk or Flake off.

We guarantee it to be free from adulterants, such as whiting, barytes, lime, and other substitutes that do not add to the enduring qualities of the paint. Our paint is made of strictly pure lead, strictly pure zinc, and genuine French ocher of about equal proportions, mixed in pure linseed oil. It is generally recognized that there is no pigment more permanent than French ocher; and this, combined with zinc and lead, makes a most durable combination. The resultant tint is a pale straw color. Price: Pint, 35c; quart, 60c; half-gallon, $1.00; gallon, $1.75. Half a gallon will cover ten No. 1 Dovetailed hives two coats.

A. I. ROOT, Medina, O.

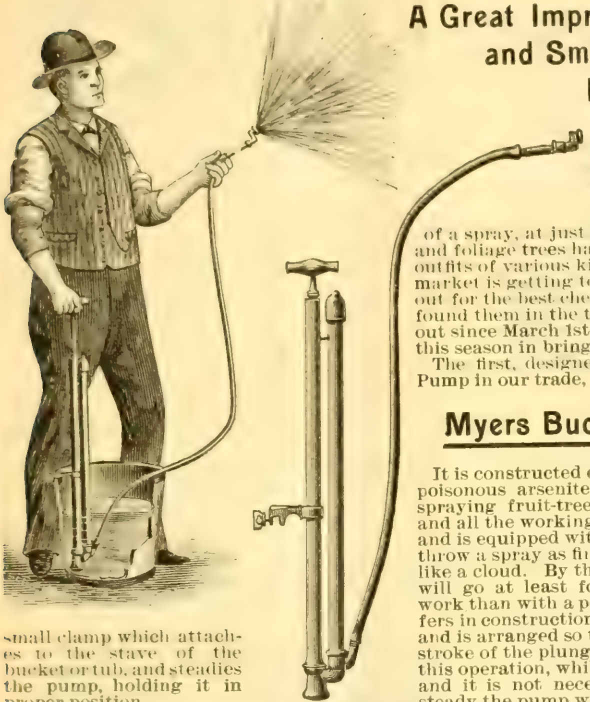
Black and Hybrid Queens For Sale.

For the benefit of friends who have black or hybrid queens which they wish to dispose of, we will insert notices free of charge, as below. We do this because there is hardly value enough in these queens to pay for buying them up and keeping them in stock; and yet it is oftentimes quite an accommodation to those who can not afford higher-priced ones.

I have 40 good hybrid queens for sale at 40c each, or 3 for $1.00. None but good queens are sent. Safe arrival guaranteed; stamps taken.
JAS. M. SMITH, Perkiomenville, Montg. Co., Pa.

SOMETHING NEW in Spray and Force Pumps.

A Great Improvement on the Whitman and Smith Pumps we have been Selling.



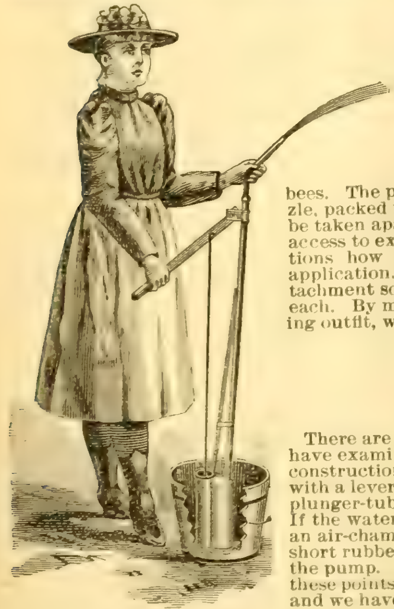
The many insect enemies to fruit and foliage have compelled all interested to study for the best means to destroy these pests. The most effective means yet devised is to administer poison in solution, put upon the tree in the form of a spray, at just the right time. The spraying of fruit and foliage trees has opened a large demand for spraying outfits of various kinds, and the number of kinds on the market is getting to be legion. We have been on the lookout for the best cheap hand-pumps, and we believe we have found them in the two following, both of which have come out since March 1st—so recent that we are rather late for this season in bringing them to your notice now.

The first, designed to take the place of the Whitman Pump in our trade, is the

Myers Bucket Brass Spray Pump.

It is constructed of material that is not affected by the poisonous arsenites used in the different formulas for spraying fruit-trees, vines, and shrubbery. The cylinder and all the working parts are brass; has rubber ball valves, and is equipped with the combination spray nozzle, and will throw a spray as fine as mist. It is so fine that it floats up like a cloud. By this feature the same amount of liquid will go at least four times as far, and does more effective work than with a perforated spray nozzle. The pump differs in construction from the old-line pumps of this class, and is arranged so that the heavy work is done on the down stroke of the plunger and nothing on the up. The effect of this operation, while pumping, is to hold the pump down, and it is not necessary to use a foot-rest or in any way steady the pump while in operation, except by means of a small clamp which attaches to the stave of the bucket or tub, and steadies the pump, holding it in proper position.

By doing the pumping on the down stroke of the piston, and the fact that it is not necessary to steady the pump with any foot-rest, makes it very easy to operate, and gives it extraordinary power. It is provided with a large air-chamber, and has a valve at the bottom between the cylinder and the air-chamber, whereby the pressure is held uniformly in the air-chamber and on the hose, so that the nozzle throws a constant, continuous, even spray all the time, and is not affected by the movements of the plunger, and the operator is enabled to keep a constant pressure on the nozzle of from 50 to 100 lbs., with very ordinary exertion. It will throw a solid stream 50 feet, and is of unusual value for washing windows, etc. For spraying it is arranged so it discharges a fine jet in the bottom of the bucket, to keep the solution thoroughly mixed and agitated—a feature peculiar to this pump.



We show the pump in operation, and a larger view alongside. By simply unscrewing the spray nozzle the pump is ready to throw a stream which is very effective in washing buggies, windows, putting out fires, or arresting swarms of bees. The pump complete, with four feet of ⅜-inch rubber hose, and nozzle, packed for shipment, weighs 7 lbs., and our price is only $5.00. It can be taken apart, and sent in two packages by mail, where you haven't easy access to express office, for $1.20 extra. A pamphlet, giving full instructions how and when to spray, goes with each pump, or mailed on application. We can furnish extra combination spray nozzles with attachment so it can be put on a common ¾-inch hose connection, at 60 cts. each. By mail 75c. We are also prepared to furnish Myers Barrel spraying outfit, without the barrel, at $7.50, shipped direct from Ashland, Ohio.

Common-Sense Spray Pump.

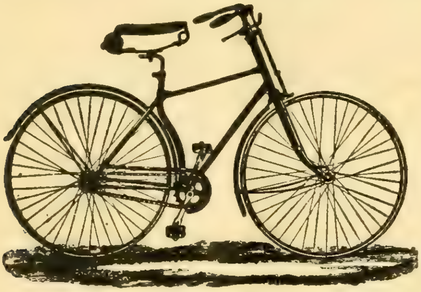
There are a number of cheap tin pumps on the market; but, so far as we have examined, this is ahead of them all. The adjoining cut shows its construction and manner of working. The piston, or plunger, is worked with a lever handle, giving greater force for the same power exerted. The plunger-tube is shorter, and larger in diameter, than the ordinary pump. If the water comes over the top it spills right into the pail again. It has an air-chamber, with valve, giving a continuous stream or spray. It has a short rubber hose to give direction to the stream or spray, without moving the pump. It has also an adjustable nozzle for stream or spray. In all these points we regard it superior to the Smith pump we have been selling, and we have adopted this pnmp in place of the Smith, and will sell at the same prices as given in our price list, page 12. Retail price, $1.00 each.

Special prices on either of the above pumps in quantities, to those who buy to sell again.

A. I. ROOT, Medina, Ohio.

EMPIRE

Safety ✢ Bicycles.



Strictly High-Grade Machines.
Made of the Best Materials.
Solid and Cushion Tire.
For Ladies and Gentlemen.

PRICES:

Gents' 30-in. Solid Tire, like cut	$80.00
" " 1¼-in. Cushion Tire	90.00
Ladies' 28-in. Solid Tire	80.00
" " 1¼-in. Cushion Tire	90.00

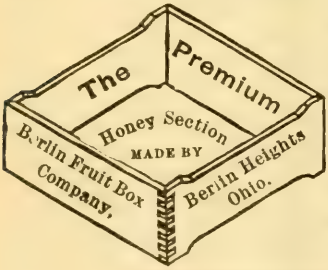
A. I. ROOT, Medina, O.

JENNIE ATCHLEY

Will send you queens by return mail. Safe arrival and satisfaction guaranteed; either three or five banded strains. Untested, April and May, $1.00 each; six, $5.00; after, 75c each; six, $4.20; or $8.00 per dozen. Tested and breeding queens on application; try my queens. Money-order office, Greenville.

JENNIE ATCHLEY,
1tfdb **Floyd, Hunt Co., Texas.**

Please mention this paper.



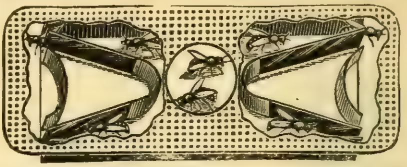
BEE SUPPLIES and all kinds of Berry-packages, boxes and baskets. We make a specialty of one-piece sections, and wood separators. Address BERLIN FRUIT BOX CO., Berlin Heights Erie Co., Ohio.

Please mention this paper

WANTED—LADY OR GENT IN EACH county to distribute and collect for Brabant's ladies' toilet cases; 238 articles, worth $1; will send sample and full particulars by mail for 35c in stamps; returnable if not satisfactory; territory free; $3 to $5 per day easily made. Address J. C. FRISBEE, general agent, 172 Maple St., Denver, Col. Reference, A. I. Root, Medina, O.

IMPORTED ITALIAN QUEENS, $3.50 on arrival, June 1st. Untested queen, $1.00. Order now. W. C. FRAZIER, Atlantic, Iowa.

Hastings' Lightning Bee-Escape.



Send for sample of Hastings' "Lightning" Bee Escape, and you will be convinced that it is the best and most practical escape yet produced. It will clear the supers in a short space of time (2 to 4 hours), and it is impossible for the bees to clog the passage, as they can not return. Each escape guaranteed as represented. Price, by mail, each, $0.20; by mail, per doz., $2.25. Full directions with each escape. Electrotypes furnished free for dealers' catalogues. Write for discount. 7-12db

M. E. HASTINGS, New York Mills, Oneida Co., N. Y.

Please mention this paper

Send for Price List to
R. E. HARBAUGH,
Manuf'r and Dealer in Bee-Keepers' Supplies.
Breeder of Italian and Carniolan Bees and Queens, Light and Dark Colored Ferrets.
25th and Clay Sts., - - - St. Joseph, Mo.

Italian Bees and Queens For Sale.

Untested queens, $1.00; tested, $1.50. Bees, $1.00 per lb. Colony, $5.00. Also barred Plymouth Rock eggs for sitting, $1.00 per 13.

7-16db MRS. A. A. SIMPSON, Swarts, Pa.

POULTRY. Choice Fowls and Eggs for sale at all times. Finely illustrated circular free. GEER BROS St. Marys, Mo. 21tfdb

---

Hatch Chickens by Steam.

IMPROVED EXCELSIOR INCUBATOR

Circulars free.

Will do it. Thousands in successful operation. *Simple, Perfect and Self-Regulating.* Lowest-priced first-class Hatcher made. Guaranteed to hatch a larger percentage of fertile eggs at less cost than any other.

Send 6c. for Illus. Catalog. GEO. H. STAHL, Quincy, Ill.

☞ In responding to this advertisement mention GLEANINGS

Bee-Hives and Sections

A specialty. Foundation, Smokers, etc., in stock. Send for new list, free.

4tfdb **W. D. SOPER, Jackson, Mich.**

Please mention this paper.

WESTERN BEE-KEEPERS' SUPPLY HOUSE.

ROOT'S GOODS can be had at Des Moines, Iowa, at ROOT'S PRICES. The largest supply business in the West. Established 1885. Dovetailed Hives, Sections, Foundation, Extractors, Smokers, Veils, Crates, Feeders, Clover Seeds, etc. Imported Italian Queens. Queens and Bees. Sample copy of our Bee Journal, "THE WESTERN BEE-KEEPER," and LATEST CATALOGUE mailed FREE to Bee-keepers.

JOSEPH NYSEWANDER,
Des Moines, Iowa.

In writing to advertisers please mention this paper. 4tfdb

TESTED ITALIAN QUEENS.

50 tested Italian queens for sale at $1.00 each, to be delivered June 1st to 15th, all raised last fall from an imported, and best select tested queens. Untested queens, July 15th and after, 70c each; 3 for $1.75; 6 or more, 50c each. D. G. EDMISTON,
Adrian, Lenawee Co., Mich.

Foundation, Wholesale and Retail.

If you would like to see how nice foundation can be made, send for free samples. Special prices to dealers on Foundation and Sections, etc. Free price list of everything needed in the apiary. 6tfdb (Near Detroit.)

M. H. HUNT, Bell Branch, Mich.

TESTED ITALIAN QUEENS, 80c **IN JULY AND AUGUST.** In June, $1.00 each. Mismated queens, 40 cents.
J. C. WHEELER, PLANO, ILL.

Yellow, Extra, Excellent

B Italian Queens for sale in June at Chenango Valley Apiary. E Tested, $1.50 Untested, $1 Order early Send for list! E Two-frame Nucleus with Queen, $2.00. Don't pass by S

MRS. OLIVER COLE, Sherburne, Chenango Co., N. Y.

9tfdb Please mention this paper.

BEE-HIVES, Dovetailed or Otherwise.
All Kinds of Bee Supplies.

Write for free catalogue. **W. H. PUTNAM,**
8-13db **River Falls, Pierce Co., Wis.**

☞In responding to this advertisement mention GLEANINGS.

4 **BANDED ITALIAN BEES.** Tested, $1.00; Untested, 60c; Selected tested, $1.25; one 2-frame nucleus, tested queen, $2.00; untested, $1.50 Safe arrival guaranteed.

8-12db **STEWART BROS., Sparta, Tenn.**

LEATHER-COLORED ITALIAN QUEENS.

One untested, $1.00; six, $5.50; twelve, $10.00; one tested, $1.50; six, $8.00; twelve, $15.00; selected for breeding *early*, each, $2.50; one year old tested, *in June only*, $1.25; six, $7.00; twelve, $13.00. Two-year-old queens, each, 50c. Descriptive catalogue mailed free on application.

8-13db **A. E. MANUM, Bristol, Vt.**

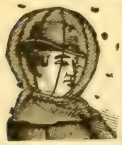
☞In responding to this advertisement mention GLEANINGS.

I DO NOT ADVERTISE

a specialty, but every thing found in APIARY. Beeswax wanted. **C. E. LUKENS.**
6-7d **19 N. 2d St., Philadelphia, Pa.**

☞In responding to this advertisement mention GLEANINGS.

GLOBE BEE-VEIL



By Mail for $1.00.

A center rivet holds 5 spring-steel cross-bars like a globe to support the bobinet Veil. These button to a neat brass neck-band, holding it firmly. It is easily put together; no trouble to put on, or take off. An absolute protection against any insect that flies. Will go over any ordinary sized hat; can be worn in bed without discomfort; fits any head; does not obstruct the vision; folds compactly, and can be carried in the pocket; in short, it is invaluable to any one whom flies bother, mosquitos bite, or bees sting.

Extra Nets, 50 Cents Each.

THOMAS G. NEWMAN & SON,
199 Randolph St., Chicago, Ill.

Bee-Keepers' ❋ Supplies.

We are prepared to furnish bee-keepers with supplies promptly and at lowest rates. Estimates gladly furnished, and correspondence solicited. Our goods are all first-class in quality and workmanship. *Catalogue sent free.* Reference, First National Bank, Sterling, Ill. Address 1-24db

WM. McCUNE & CO.,
Sterling, Illinois.

☞In responding to this advertisement mention GLEANINGS.

Wholesale and Retail Manufacturer and Dealer in **BEE-KEEPERS' SUPPLIES.**

ONE-PIECE SECTIONS A SPECIALTY, AS GOOD AS THE BEST.

Send for catalogue. **W. E. SMITH,**
5tfdb *Successor to Smith & Smith,*
KENTON, HARDIN CO., OHIO.

In writing advertisers please mention this paper.

AND DON'T YOU FORGET IT

I TELL you what, Jones, **Levering Bros.** sell the best goods and at the lowest price of any one I've struck yet. The largest and best equipped

Bee-Hive Factory

in the West. The Dovetailed Hive and New Hoffman self-spacing Frame a specialty. Every thing used by practical bee-keepers at wholesale and retail. Send for their free Illustrated Price List, and save money. Supply Dealers, send for their Wholesale List. Address

LEVERING BROS.,
6tfdb **Wiota, Cass Co., Iowa.**

Please mention this paper.

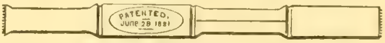
BEE-HIVES, SECTIONS, ETC.

We make the best goods and sell them cheap.
Our Sections are far the best on the market.
Our Works turn out the most goods of any factory in the world.
Our goods are known as the best throughout the United States and Europe.
Write for free, illustrated catalogue and price list.

G. B. LEWIS & CO., WATERTOWN, WIS.

☞In responding to this advertisement mention GLEANINGS.

J. FORNCROOK & CO.



WILL FURNISH YOU THE

"BOSS" ONE-PIECE SECTION

AS CHEAP AS THE CHEAPEST,

And the Best in the Market.

ALSO DOVETAILED HIVES, AND OTHER SUPPLIES.

☞Write for Price List.

WATERTOWN, WIS., Jan. 1, 1892. 7-9-11d
4tfdb Please mention this paper.

PURE ITALIAN BEES.

By the pound, 90 cents. Untested queens from imported mother, 90 cts. Two-frame nuclei, both frames containing brood with all adhering bees, and untested queen from imported mother, $2.00. Tested queens, $1.50. Satisfaction guaranteed.

MRS. A. F. PROPER,
PORTLAND, JAY CO., IND.

Please mention this paper.

OTTUMWA BEE-HIVE FACTORY.

Bee-keepers, look to your interests. Every thing in the line of bee-supplies constantly on hand. Price list free. **GREGORY BROS. & SON,**
1-12d Ottumwa, Ia. South side.

JUST OUT!

TILE ✠ DRAINAGE.

BY W. I. CHAMBERLAIN, A. M., LL. D.,

Formerly Secretary of the Ohio State Board of Agriculture, and late President of the Iowa State Agricultural College. At present Associate Editor of the Ohio Farmer.

This is a valuable companion to our other rural books. It embraces the experience of forty years of one of our foremost practical agriculturists, who has laid with his own hands over 15 miles of tile. Price 35c; by mail, 40c.

A. I. ROOT, MEDINA, OHIO.

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CONVENTION NOTICES.

The Carolina Bee-keepers' Association will meet at the Court-house in Charlotte, N. C., July 21. A. L. Beach, Sec.
Steel Creek, N. C.

SPECIAL NOTICES.

Since we have begun manufacturing the Cowan Rapid extractor in a wholesale way, we find we can put them on the market for a little less money than we advertised in our last issue. The price from now on, instead of $12.00 will be $10.00 for the Cowan, to take the L. frame. To be fair to all parties who have already purchased, we will credit them $2.00 on subscription to Gleanings, or in supplies, as they may elect, providing they write asking to take advantage of this offer.

LAWN-MOWERS.

Now is the time for trimming the lawns and bee-yards to make them neat and attractive. You can not do this successfully without a good lawn-mower. We are prepared to supply you with one of the best mowers on the market at prices lower than former years. We sell the Globe in five sizes, as follows: 10 in., $4.65; 12 in., $5.00; 14 in., $5.35; 16 in., $5.65; 18 in., $6.00. We have also the Young America, a single driver, in two sizes, as follows: 10 in., only $3.50; 12 in., $4.20. In lots of 2 at a time, 3 per cent off; 3 together, 5 per cent off; 5 or more in one order, 10 per cent off. The quantity may be made up of assorted sizes, and both kinds if desired.

A CHEAP BATTERY MOR IMBEDDING WIRE.

After some little experimenting we are in a position to offer a battery of three cells, including imbedding-board, chemicals in the form of crystals, connections, complete directions how to use, with a Daisy foundation-roller thrown in, packed for $2.50. The only thing that you will need to buy is about 10c worth of sulphuric acid at your drug store; this we can not very well send safely. Our first outfit cost us about $9.00, so what we offer is very cheap and equally serviceable. It will do the work of putting foundation on wire the nicest and most rapidly of any thing we have ever tried.

MASON JARS.

A month ago we gave prices of Mason jars, in this department, for immediate orders, and to be shipped direct from Pittsburg, from June 1st to 15th. The orders are just now beginning to come in, and the price has gone up already. The following are the prices to-day, and they are liable to be from $1.00 to $3.00 per gross higher before this month if over, so that, if you expect to get these prices, you must send your orders **at once.**

Pints,	green	glass,	large caps,	8 doz.	in a	box,	$5.65
Quarts	"	"	"	"	"	"	6.00
2 "	"	"	"	6 doz.	"	"	6.00

We will give you the best price we can at the time your order comes, if you want to send us your orders. The sooner you do it the better off you will be.

EGYPTIAN ONION-SETS READY TO PLANT RIGHT OFF NOW.

Our esteemed friend M. S. Klum sends the following just as we go to press.

Mr. A. I. Root:—I have been gathering some Egyptian onion-sets. They would grow right off if planted under favorable circumstances. Let me fill a few orders for you by mail. You set the price, and give me some directions about packing and mailing. During a shower a few days ago, some tops blew down, and some sand washed over them. I noticed roots on one that were three inches long. When we use them, after they multiply and will separate, we dig down on one side to the roots, then take hold of all the tops except one, two, or three; then run a finger between them and those in my hand, and separate them; then I take out whatever is in my hand, and those left are the better for the division. Then I eat, set out, give away, or throw away those pulled up. Very few people know how easy it is to have more than they want of those onions. M. S. Klum.

Jaxboro, Texas, May 21.

Of course, they will grow. Last spring I pulled them out just as soon as they began to look like sets, and planted them at intervals all along, and they grew splendidly. I would suggest that those who want them send at once to friend Klum. Our prices, when we have them, are, 15c per quart, or $1.00 per peck; 10c per quart extra when ordered by mail.

STEEL-LAID SHEARS, BEAUTIFULLY NICKEL-PLATED, AT HALF THE USUAL PRICE.

We desire again to call the attention of our readers to this rare bargain. (See adv't on another page). We have been selling shears of this brand for ten years or more, and our sales are constantly increasing, which shows that the goods are appreciated. We made one purchase of 150 dozen, which sold so rapidly that we bought another lot of 350 dozen. Strictly speaking, they are seconds; but the defects are so slight that, in many cases, it is hard to find them at all. It may be a slight defect in the nickel plating, or a little pit in the metal on which the steel is laid—any little thing that would exclude them from perfect goods, but which does not injure their cutting quality. The cutting quality is what you want, and you have it to perfection in these Leader shears; and when you see them I think you will agree that they look pretty nice too. As we buy the whole factory output of this grade, we get them at about our own price, and are thus able to make the very low prices in the table, page 437, which you will find, by inquiring, are about half what you have to pay usually for the same size. You notice we quote the price in quantities as well as singly. Quite a number of customers are doing a good thing for themselves as well as their neighbors, by buying in quantities and introducing them among their neighbors. You notice from the table we have none of the 8-inch size, but we have about 90 dozen 7½-inch, and plenty of 6, 6½, and 7. Our stock of 8½ and 9 is also low. The four smaller sizes are, however, the best for general use.

SECOND-HAND MACHINERY.

During the past few months we have bought up several outfits of machinery for making bee-keepers' supplies; and if any of our readers or their friends contemplate putting in machinery we are prepared to fit you out from cellar to garret with everything you need in engines, boilers, machinery, shafting, pulleys, hangers, belting, saws, etc. The following is a partial list of the second-hand machinery we have to sell. If you desire further particulars we shall be pleased to hear from you.

One 20-H. P. Fishkill horizontal engine, rebuilt, and as good as new; would cost new, $400; will sell for $200.

One 5-H. P. horizontal engine and boiler, with engine mounted on boiler, in good running order. Price $150.

One 24-inch two-roll Fay sandpaper machine, nearly new. Price, new, $450; will sell for $175.

One 9-inch cigar-box planer, nearly new; has been used very little. Price, new, $65; will sell for $40.

One V-groove section machine, nearly new. This is our make, old style, with screw-feed; sold some years ago for $75; will sell now for $40.

One cutter-head, with table complete, for cutting entrances to sections. Old style, but nearly new, and in good repair. Price, new, $25.00; will sell for $15.00.

One iron-frame hand-jointer; well worth $25; will sell for $15.

One double-head tenoning-machine, especially arranged for making the combined rabbet and miter joint of the Simplicity hive, but can be used for making sash and window-screen frames, etc. We could not build such a machine, and sell it for less than $150; we will sell this for $60.

One iron planer, 16x36-inch bed, automatic reversing device to run back and forth. It cost us, second-hand, several years ago, $150; is about as good now as then, but we had to have a larger size. We offer this for $50.

Two extra large saw-tables for general use, to cut off or rip, with counter-shaft attached to frame; worth new, $50 each; will sell for $20 each.

Two four-piece section-machines, as good as new. They cost new, $85 each; we will sell them for $30 each.

Also a large lot of shafting, pulleys, hangers, belting, and saws, too numerous to mention here.

JAPANESE BUCKWHEAT.

This long-continued wet and cold weather is not only cutting off the prospect of a full honey crop, but is preventing the planting of corn till it will be too late for it to mature before frost comes in the fall. Japanese buckwheat can be sown as late as July 15, and mature before frost, in ordinary seasons. It is also as profitable to raise, and makes as good feed for stock, as corn. Mrs. W. H. Shane, widow of the late W. H. Shane, who was one of the most successful bee-keepers and farmers of this county, raised several acres of Japanese buckwheat two years ago, which yielded sixty bushels to the acre. Last spring oats and corn were scarce in this locality, and prices were rather high. Rather than sell the buckwheat for 60 cts. a bushel and buy corn at 65 or 70 cts., she tried the buckwheat for feed, and I believe her verdict was, that the same number of bushels would go further than corn. May be others have tried it. If so, we would be glad to get reports of its value. See cut, and prices of seed, in another column.

DECLINE IN BEESWAX.

A year ago at this time beeswax was rather scarce, and the market advancing, but just now the conditions are reversed, and we are obliged to drop 2 cents a pound on the price. We are now paying 25c per lb. cash, or 28c in trade for average wax delivered here, and we would not be surprised if within a month or six weeks the price goes still lower, as by that time the demand for use in making comb foundation will be over. (Prices in advertisment on page 434 are 2c too high). We made no advance in the retail price of foundation when we made this 2 cent advance in price of wax, and therefore we make no decline now, but if wax goes lower we will also decline the price of foundation. In sending us wax please don't fail to put your name and address in or on the package somewhere, so we can tell who it comes from; also write us a letter stating the exact number of pounds you ship, so we can tell if there is any shortage on arrival. We have two lots of wax recently received, and we can not tell who sent it. One is a barrel of over 200 lbs., and the other a small box of 23 lbs. net.

Our subscrption list at this date is 10,050.

IF YOU WANT BEES

That will just "roll" in the honey, try **Moore's Strain of Italians**, the result of 13 years' careful breeding. Prices in June: Warranted queens, $1.00 each; 3 for $2.50. Strong 3-frame nucleus, with warranted queen, $3.00. Safe arrival and satisfaction guaranteed. Those who have never dealt with me I refer to A. I. Root, who has purchased of me, during past 12 years, 582 queens. Circulars free.

J. P. MOORE, Morgan, Pendleton, Co., Ky.
11-12d Money-order office, Falmouth, Ky.

In writing to advertisers please mention this paper.

Sections at $3 per 1000. These are perfectly smooth, and first-class. Brood foundation 45 cts. per lb. All supplies equally low. Goods shipped direct from New York city. 1-18dt.

I. J. STRINGHAM,
92 Barclay St., N. Y.

☞In responding to this advertisement mention GLEANINGS.

I Will Pay $25.00 in Advance to any reliable man who will send me, by the fore part of June, 100 lbs. of young bees in 2-lb. packages. Correspondence solicited.

TALBOT ANDREWS, MONMOUTH, WARREN CO., ILL.

QUEENS.

Italian 5-banded bees for business; untested, June, $1.00.
O. F. SNOW,
11d **East Dennis, Mass.**

HONEY COLUMN.

CITY MARKETS.

NEW YORK.—*Honey.*—No change in the honey market since last issue. Some small lots of southern and orange-blossom extracted honey arriving. Market on southern, 65@75 per gallon, according to quality; orange blossom, 7@7½.

Beeswax, 27@29, with 1@2c per lb. advance for choice run.

May 19.
CHAS. ISRAEL & BRO.,
110 Hudson St., New York.

DETROIT.—*Honey.*—The market is about cleaned up of all desirable comb honey. Dark and inferior lots selling at what prices buyers will give. Extracted, 7@8. *Beeswax*, 27@28.

May 19.
M. H. HUNT,
Bell Branch, Mich.

ALBANY.—*Honey.*—Three weeks ago we did not expect to be able to close out our large stock of comb honey before July 1st; but the cool weather has favored us and we are entirely sold out, including a number of recent consignments. Prices range from 6@10 according to style and quality. Extracted selling slow at 6@7.

CHAS. MCCULLOCH & CO.,
May 13. Albany, N. Y.

ST. LOUIS.—*Honey.*—There is quite a demand for white-clover comb at 16@18. Dark can not sell at any price. Extracted in barrels sells readily at 5@5½. Cans are slower sale at 6½@7. We received first shipment of new crop a few days since.

Beeswax, 26.
May 19.
D. G. TUTT GRO. CO.,
St. Louis, Mo.

CHICAGO.—*Honey.*—Very little comb honey on sale, and the small amount offered is chiefly rejections out of earlier shipments; sells slow at 15c, for best of it. Our market uses very little at this season. Extracted in steady demand, and supplies are about exhausted, 6@7@8.

Beeswax, 26. R. A. BURNETT,
May 18. 161 So. Water St., Chicago, Ill.

MINNEAPOLIS.—*Honey.*—The honey market is improving somewhat. Fancy white comb, in 1-lb. sections, is selling at 17@18; choice, 15; dark, 11@12; strained, 7@8, with very slow sales.

May 21. J. A. SHEA & CO.,
14 & 16 Hennepin Ave., Minneapolis, Minn.

KANSAS CITY.—*Honey.*—Demand poor, with supply well cleaned up. We quote: Comb, 1-lb., fancy, 12; dark, 8@9. Extracted, white, 7; dark, 5@6. *Beeswax*, none on the market.

May 19. HAMBLIN & BEARSS,
514 Walnut St., Kansas City, Mo.

BOSTON.—*Honey.*—No change in the honey-market. Slow sale, and fair stock on hand.

May 19. BLAKE & RIPLEY,
Boston, Mass.

KANSAS CITY.—*Honey.*—The demand is very light; supply ample. We quote: 1-lb., No. 1, white, 12@13; No. 2, 10@12; No. 1 amber, 11@12; No. 2 amber, 5@10; extracted, 5@6½. *Beeswax*, 22@27.

CLEMONS, MASON & CO.,
May 20. Kansas City, Mo.

WANTED. 25 swarms of bees with queens by the 15th or 20th of June, in light shipping-boxes (no combs); who will sell cheapest?

ROBT. QUINN, Shellsburg, Benton Co., Ia.

WANTED.—Old stamps; 25c paid for each 10c stamp used from 1847 to 1851. All old stamps bought. Look them up, your old trunks and papers may contain several dollars' worth. 11d

H. BRICKER, Bellevue, Pa.

ITALIAN QUEENS FOR SALE. Untested, $1.00; tested, $1.50.

J. C. PROVINS, MASONTOWN, PA.

The Bee-Keepers' **REVIEW** For 1892 and a Fine, Young, Laying Italian **QUEEN** for $1.50. The Review Alone, $1.00. The Queen Alone, 75 Cts. For $1.75, the Review, the Queen, and the 50 ct. Book, "Advanced Bee Culture," will be sent. W. Z. Hutchinson, Flint, Mich.

P. S.—If not acquainted with the REVIEW, send ten cents for three late but different issues.

STRAWBERRIES!

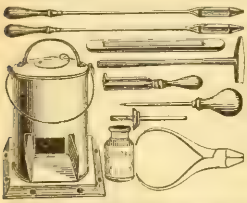
Fresh Picked from the Vines.

Shipped by first train at the ruling Marietta prices. Or will contract with you for rates. Address all orders and correspondence to

R. STEHLE, MARIETTA, O.

If friend S. sends you such berries as he sent us a year ago, you will surely be pleased. A. I. R.

☞In responding to this advertisement mention GLEANINGS.



OATMAN'S SOLDERING AND REPAIR KIT

Consists of fire-pot, soldering-irons, solder, and soldering-fluid, with tools compl'te as shown in cut, with directions for soldering different metals, and how to keep your soldering-irons in shape. Whole kit, boxed, 12 lbs. Shipped on receipt of $2.00. Agents wanted.

O. & L. OATMAN, Medina, Ohio.

☞In responding to this advertisement mention GLEANINGS

YOUNG QUEENS READY

to mail to any one, anywhere at any time, in the U. S. or Canada. **ITALIANS,** untested, $1.00; 3, $2.75; 6, $5.00; per dozen, $9.00. Tested, reared last season, $2.00; 3 for $5.00. Two-frame nucleus, with any queen, $1.25 extra. Safe arrival guaranteed. Send for circular of **Dovetailed Hives,** Smokers, Foundation, **Drones,** etc. Money-order office, Clifton. **COLWICK & COLWICK, NORSE, TEX.**

☞In responding to this advertisement mention GLEANINGS.

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50 CENTS WILL BUY A GOOD 2-STORY L. Hive. $1.00 Will Buy 100 L. Brood Frames. $1.00 Will Buy a Nice Golden Italian Queen. Please Write for our Circular Before you Buy your Supplies.

W. H. BRIGHT, Mazeppa, Minn.

Please mention this paper.

BEE SUPPLIES RETAIL --AND-- WHOLESALE.

Everything used in the **Apiary.** Greatest variety and **largest** stock in the West. New catalog, **54** illustrated pages, free to bee-keepers. **E. KRETCHMER, RED OAK, IOWA.**

In writing advertisers please mention this paper.

CARNIOLAN BEES AND QUEENS. They beat them all. Never have dysentery. All queens reared from select imported mothers. Untested, 50c; 12 for $5.00. Tested, $1.00; 12 for $10.00. Select tested, $1.50. Descriptive circular free. **A. L. LINDLEY, Jordan, Ind.**

8-13db

FOR SALE.

LARGEST BEE SUPPLY BUSINESS IN CANADA.

Reputation all over America.

A Snap for some enterprising business man or firm. Good reasons for selling; only $2000 or $3000 required. Send for particulars. Address

DR. R. S. CHEFFEY, Beeton, Ont.

IF YOU WANT GOLD.

Send for one of my golden Italian queens, raised from the best 5-banded stock, that has been awarded *First Premium* at the *Detroit* Exposition the last two years. Untested queens, $1.00 each; 6 for $5.00. Tested queens, $2.00 each. Breeding queens, $5.00 each.

ELMER HUTCHINSON,
VASSAR, TUSCOLA CO., MICHIGAN.

11tfd 9-10d Please mention this paper.

IT PAYS

To order the best made goods. For Fine Sections, Foundation, Perforated Zinc, Queen Excluders, and the best hive for comb honey now before the public, order of Dr. Tinker. PRICES GREATLY REDUCED. Address for catalogue

DR. G. L. TINKER, New Philadelphia, O.

Please mention this paper. 8-11db

FIVE-BANDED GOLDEN ITALIANS.

Untested 3 or 5 banded stock, $1.00; six for $5.00. Tested 3-banded, $1.25; 5-banded, $2.00; hybrids, 35c. Full colonies, nuclei, and supplies cheap; catalogue free. **CHAS. H. THIES, Steeleville, Ill.**

Please mention this paper.

POSITIVELY

By return mail, beautiful young warranted Italian queens, at $1.00 each. Tested, $1.50. A select tested yellow-to-the-tip breeder, $2.00. Satisfaction guaranteed. **W. H. LAWS, Lavaca, Ark.**

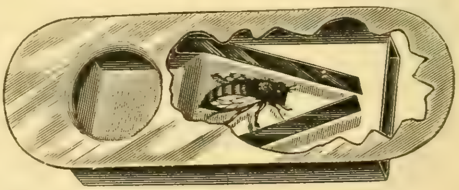
8tfdb

DID YOU EVER SEE

One of our 5-banded red-clover queens? 100 lbs. of clover honey in poor seasons. Send for descriptive circular free. LEININGER BROS., Ft. Jennings, Ohio.

7tfdb

Porter's Spring Bee-Escape.



We guarantee it to be the best escape known, and far superior to all others. If, on trial of from one to a dozen, you do not find them so, or if they do not prove satisfactory in every way, return them by mail within 90 days after receipt, and we will refund your money.

PRICES:—Each, by mail, postpaid, with full directions, 20c; per dozen, $2.25. Send for circular and testimonials. Supply dealers, send for wholesale prices.

10tfdb **R. & E. C. PORTER, LEWISTOWN, ILL.**

☞In responding to this advertisement mention GLEANINGS

GLEANINGS IN BEE CULTURE
A Journal Devoted to Bees and Honey and Home Interests.
Illustrated Semi-Monthly
Published by A. I. Root.
$1.00 per Year. Medina Ohio

Vol. XX. JUNE 1, 1892. No. 11.

STRAY STRAWS

FROM DR. C. C. MILLER.

Let's follow Prof. Cook's suggestion, and write to the Secretary of Agriculture.

"Wet and cold most of the time," says Doolittle, "and that tells you all about it."

That Myers spray pump is just what I've been looking for this good while. Must have one.

Doolittle took his bees out of cellar April 26, 19 days later than I did. Wise Doolittle. Foolish Miller.

New Hampshire is a bad State for selling artificial honey. The *A. B. J.* says a man was fined $100 for selling it there.

My bees are still dying off in the middle of May. It's not dwindling; the weak ones just die, same as they do in winter.

Two young queens last season mated 31 days after leaving their cells, for W. P. Faylor, and he says they were good in every respect.

R. Gammon writes that he is afraid the nameless disease may become a very serious matter with him, and he finds the salt cure no good.

If I had kept fire in my cellars all winter and then not taken the bees out till May 16, I think I should have had more bees than I now have.

Soft-maple bloom is becoming less and less a guide for me as to taking bees out of the cellar. Of late years the maple doesn't seem to have very good judgment, and blooms too soon.

The Keeley Tobacco Cure, according to the *Weekly Medical Review*, killed a man in Omaha, after two weeks' use. It's not so safe as the Root smoker cure, and I don't believe it's as sure.

Laurel honey may be rank poison, but if it is I'm puzzled to know why I never heard of any one being poisoned by it in Western Pennsylvania where we had acres and acres and acres of laurel. And wasn't it beautiful?

The first swarm came out for me May 12, but it was a "fool swarm," a little bit of a colony leaving its hive without the shadow of an excuse—had plenty of honey, a clean hive, and all that—what makes such a colony swarm, anyhow?

I read, on p. 385, "We notice that the Big Four are having all their ears painted with ocher," and began wondering who had been decorating the ears of the incorporators; but on reading further I found the editor was talking about a railroad, and that it was *cars* and not *ears* that had the coat of ocher.

Is the thorax of a laying queen any larger than it was when she was a virgin? Who can tell us? For it's the thorax, isn't it, and not the abdomen that prevents a queen from going through an excluder? Bro. Larrabee, there's a nut to crack.

"*We have lost* largely," writes Mrs. Axtell, "and more are dying every day, spotting the hives badly—not enough bees left to cover the capped brood." My bees differ in one respect. They haven't as much brood as they can cover. I suspect it is better so.

That chapter by A. I. Root in the new book, "How to Support a Family on a Quarter of an Acre of Ground," is good, I'll warrant; but the question that interests me most is, "How to Support Forty Acres of Ground with only One Small Family."

This is the worst spring, I think, for bees, that I ever knew. Changing from cool to cold, and rain, rain, rain, there have been no days when bees could fly all day, few when they could leave the hive at all, and none when they could gather any thing to speak of.

May 12 was the first day for some time that bees could fly, and there was on that day some spotting of hives, just as on first flight in spring. Showed they were injured by the long confinement. Then May 16 was good, and those two days are the only good ones we've had in the month, up to the 20th.

Bait sections, I used to think, were better in the corners of the super. Latterly I prefer them in the center. I think one bait in the center is as good as one in each corner. Bees start sooner in the middle, and if there are any unfinished sections left in a super I'd always rather have them in the corners.

Sweet clover, I suspect, may have a future before it as a hay plant. I have lately been feeding some sweet-clover hay, and find it a success. If I were a farmer, I should give it a thorough trial; for if it makes good hay, I think there is no question about the heavy yield per acre. I am inclined to believe that it needs no cultivation of taste for the dry hay, as it does for the green plant.

Looks a little blue to see the bees kept the same as in winter quarters up to May 20, and no telling how much later, but there's much to be thankful for. I've plenty to eat and drink, the happiest home in Northern Illinois, and it's up on a hill where there's no danger of its being washed away like so many others; and although the flood-gates of heaven seem wide open all the time, there are blessings as well as rain coming down.

Excluders have been reported in some instances as failures. Was it because the excluders were faulty, or can a queen go through the best of excluders *if she tries?* To say that a queen doesn't go up into a super through an excluder proves nothing. Generally she doesn't wan't to go up, and wouldn't go up anyway. But put the brood above and all empty combs below, will the queen stay down? I think with the right kind of excluder she will, but I don't know for certain.

HUTCHINSON is a philosopher. He says it makes no difference whether you charge a high price for the bee-keeper's time, or charge a low price and make a big profit; that in either case just the same amount of money goes into the bee-keeper's pocket. And he's clearly right, and it sometimes makes a difference how a thing is put. Proclaim to the world that the price received for honey is nearly all profit, and don't you think it will have more tendency to bring down the price of honey than to say that the bee-keeper gets no more than fair pay for his time?

PROF. H. W. WILEY'S REPORT ON HONEY ADULTERATION.

PROF. COOK REVIEWS IT.

This report, being a part of Bulletin No. 13 of the Chemical Division of the Department of Agriculture, which has just been issued, contains much that is of exceeding interest to bee-keepers. It is not altogether conclusive, and makes it exceedingly desirable that we should have a large number of analyses from reliable chemists, of honey of all kinds, procured in such a way that there can be no possible doubt as to the purity of the article. I am quite of the opinion that such analyses would modify the views of many of our very best chemists. Honey comes from so many and such varied sources that it must vary greatly in its nature and composition; and I very strongly believe that our chemists are not fully conversant with all the facts.

Regarding Prof. H. W. Wiley, let me say that his character as a man and a chemist ranks very high with those who know him most intimately, and are best qualified to judge. That he made a terribly mischievous error in his *Popular Science Monthly* article regarding the manufacture and sale of artificial comb honey, there can be no question. That he made a still more unfortunate mistake in not frankly acknowledging his error, and at once correcting it when his attention was called to the matter, and the truth pointed out and demonstrated, is also beyond question. His "scientific pleasantry" was an awkward excuse, unworthy of the scientist and the man. Yet many another good man finds it hard to retract an unwise or incorrect statement, or to gracefully acknowledge, even when convinced, that he has been led into error.

Prof. Wiley's first mistake was in publishing as fact that which was only rumor, and which he had taken no pains to verify. Had he avoided that mistake he would have been saved all the others. It seems to me that, in this last report, he may be repeating this mistake.

On page 744 he speaks of temptations which the manufacturer, *producer*, and dealer have not been able to withstand. That *manufacturers* and wholesale dealers have and do adulterate honey to a large extent, I think is true beyond dispute. That *producers* do this, I do not believe, and I have investigated the matter quite fully. That they do not do it is not that they are all exceptionally honest, but they are not up to such work, and are not skilled in such business. *They* are *producers*, not *manufacturers*.

Again, bee-keepers are generally well read, especially any who would be led to such work, and our bee-papers are loud in denunciation of adulteration, and so all bee-keepers know that, to be discovered as adulterators, would at once ruin their business. But all bee-keepers in a community know each bee-keeper, and watch his work and methods; hence, to engage in this work extensively at all (and there would be no profit in any but a wholesale business), would surely bring detection. I have long been conversant with bee-keepers and their work and methods, the country over, and I fully believe that no one could make this profitable, and escape detection. Again, there is now but very little profit in this nefarious work—I say "nefarious," for, to sell any article for what it is not, is to defraud—and so the *manufacturer* must do a tremendous business to make it pay. The real producer of honey, we know, does not do this. We know his sales, and we know that they are just about what the season's product permits. Hence I believe Prof. Wiley does our bee-keepers a serious wrong. I have no doubt that he thinks he is correct. I am only sorry that he had not studied the facts, and so known whereof he affirmed. I am quite sure he has no data to sustain his charge.

A study of his tables shows that it is the *manufacturer*, not the producer, who sells an adulteration as honey.

On page 745 we find, "Artificial comb honey has been regarded as a possible article of commerce by many scientific men." A slip sent out after the report, puts a *not* before "been" in this sentence. The truth is, *no* scientific man thinks it. The thing is impossible, and has never been done. A real scientist does not think a thing till he studies into it and has a reason for his conviction. It is unfortunate that Prof. Wiley had not ended his sentence with "*by any scientific man.*"

Page 745 states that "pure honey has a slight left-handed effect on the plane of polarized light, less than invert cane sugar." He states further, on p. 796, "By reason of the fact that these five samples were right-handed they have an unusual interest." These are stated as surely genuine. Again, p. 798, we find honey from pine honey-dew with a right-handed rotation. I have delicious honey from several kinds of honey-dew, and some from ergot. Does Prof. Wiley know but that some of this—which is genuine honey—may be very strongly right-handed? Is there not room for more investigation?

Again, has Prof. Wiley analyzed honey which was gathered very rapidly—basswood for instance—when the bees may gather 20 lbs. per colony in a single day—to note whether, in such cases, the bees may not fail to reduce the sucrose of the cane sugar, and thus possibly give us a genuine honey of very best quality which is strongly right-handed? He says, p. 746, "The amount of cane sugar varies from nothing to 8 to 10 per cent according to the quantity of cane sugar in the nectar, *and the extent of inversion to which it is subjected in passing the organism of the bee.* We here have acknowledgment that the digestion of the nectar—that is, the inversion of the cane sugar of the nectar—varies. May not rapidly gathered honey, then, like our basswood and the sage of California, which is often collected with tremendous rapidity, be stored without inversion, and so be rich in cane sugar and be strongly right-handed? I have good reason to think this may be true.

On p. 745 we have: "The content of water in pure honey may vary from 12 to 20 per cent. It is seldom as low as 12, and does not frequently exceed 20 per cent." On p. 786 we find that 18 samples are pronounced impure because of excess of water. Several samples gave over 30 per cent, while one gave over 39 per cent. This seems to the bee-keeper like a joke, and surely gives another reason why we should put only fully ripened honey on the market. Had Prof. Wiley consulted even a novitiate in extracted-honey production he could have learned that, since the honey-extractor has been brought into use, the percentage of water is no test for honey. How well it would be if the scientist could know more of what is A B C to the practical man!

The analyses given in the report are from ten of the best of our American chemists. Fifty samples were analyzed by each one. The adulterated samples as reported range from 12 per cent—those by Dr. S. P. Sharples, who procured his material from Boston, where there are very stringent laws against adulteration—to 76 per cent—those reported by Prof. H. H. Nicholson, of Lincoln, Neb.

ENCOURAGING POINTERS.

There is much in this report that will prove gratifying. The fact, as just stated, that Boston, with a good law against adulteration, shows so clean a record, is surely enough to move every bee-keeper to work for such a law in his own State. Especially is such a law needed in Nebraska, if the report is a correct guide. Should not bee-keepers everywhere urge the passage of the Paddock law now pending in congress?

Again, nearly if not quite all the samples condemned in the report are from *manufacturers*. Those from apiarists, so far as I know or can determine, are all pronounced pure. I have long believed and urged, that, if all would purchase honey with the producer's stamp or trade-mark on it, they would get genuine honey. As shown above, producers do not *manufacture*. The very words, "Strained honey" and "California white-clover honey," show that the honey was never put up by a bee-keeper.

PUZZLES.

That two chemists' report adulterated honey from C. F. Muth is puzzling. No one who knows Mr. Muth and his earnest work against adulteration can believe for a moment that he is guilty of any such meanness and fraud. Either the analyses are conducted on a false basis, or else Mr. Muth has been deceived in his purchases. As I understand, he purchases mostly of real producers, and so, as above shown, would get pure honey. In case he purchased of these *manufacturers*, we should suppose him too experienced and wary to be caught, as I have previously stated. Analyses which condemn honey with Mr. Muth's guarantee of purity affixed cause us to doubt the methods of analysis.

Again, how can California honey, sold at three and four cents per pound, be adulterated at a profit? Is it not possible that California honey has properties that deceive the very elect chemists?

The high standing of all the chemists engaged in this work proves conclusively that, in case there are errors, it is with the methods. As the report states, honeys are complex and varied in character, and often old chemical methods have had to be given up with the advent of new light. The fact that several wholesale dealers furnished only pure samples in every case, and that the most of Mr. Muth's samples are pronounced genuine, should tend to strengthen our confidence in the report.

A. J. Cook.

Agricultural College, Mich, May 19.

[The article above was written before Prof. Cook saw our editorial in May 15th Gleanings. Since receiving that number he writes as follows: Ed.]

It seems to me that you are very severe in your editorial regarding Prof. Wiley's report. I am sure you intend to do only exact justice, and that you have reason to feel strongly; but we can not afford to do injustice; and I know that you are the last person that would intentionally do injustice to any one. You will notice that not one of the samples purporting to come from Mr. Muth was bought of him; and any man that would lie by selling an article as pure honey which was adulterated stuff would, I imagine, not hesitate to steal a man's name and character. If he did this he would likely steal the best he could find, which means Mr. Muth's. Prof. M. A. Scovell, who analyzed the samples you refer to, is, to my certain knowledge, as I know him well, one of our finest men, and one of our best American chemists. He uses the best means known to science. I believe, as you know, that the method is, very likely, faulty; but we must not condemn a man who acts according to the best light he has. I have already consulted with Prof. S., and he desires to coöperate with me in settling this matter once for all. I wish you would aid us by helping me to get several samples of basswood and white-sage honey—surely genuine—right from the apiarist, which was gathered very rapidly by the bees. I hope to show the chemist that a new and better method is demanded.

You say Dr. Wiley starts out on a new line, to show that nearly all liquid honey is adulterated. Would it not be more correct to say, to show that much—less than half, really about 38%—of the honey prepared by wholesalers is not genuine? Are we sure this is not true? I believe this report will do good. If the chemists are in the dark, we are going to show it. If wholesale dealers are defrauding our people we should know that, and take immediate measures to prevent it. I tell you, we can secure laws and action to stay such iniquity, and we must. I do not think Prof. W. an incompetent. He is one of the ablest chemists in the country, and, I believe, wishes only the best good to all our bee-keepers. If the chemical methods need reforming, Prof. Wiley will be very glad to know it, and suit his methods to the latest and best advice that science can give. This is the certain conviction of

Yours truly, A. J. Cook.

Ag'l College, Mich.

[See editorial comment elsewhere.]

COST OF RESTRICTORS.

MANIPULATING COLONIES.

In Gleanings for March 1, page 164, is an article by Mr. S. A. Dyke upon the subject of queen restriction, with the editor's notes to the same, which, it seems to me, should be reconsidered.

First, Mr. Dyke pronounces them "quite expensive," and figures the cost of ten at $6.70 as compared with the labor of unqueening ten hives, which is figured at $2.00. In this $6.70 he has figured 40 brood-frames, made up, which he already has and would not need to buy. We may call these frames worth $1.00. If the restrictors are to be shipped without frames, another dollar may be deducted, leaving $4.70 for ten restrictors. All the parts of the restrictor are composed of metal, and will last 20 years. The labor of unqueening might be performed every year, so that for 20 years it would amount to $40.00 instead of Mr. Dyke's $2.00. Taking the cost of the ten restrictors ($4.70) from the $40, it shows a balance of $35.30 in their favor. It is no more reasonable to use restrictors only one season than to use hives only one season and throw them away.

In the footnotes the editor says, "The object of queen-restriction, advocated by C. W. Dayton, is primarily, as we understand it, to control unnecessary brood-rearing out of season." This understanding is faulty. It is not primarily nor any other "marily." In my last pamphlet, no such function is mentioned; but for correction, and any one who cares to know, I may explain somewhat further. You use an excluding honey-board on top of the brood-chamber, to prevent the queen from going above into the sections. Very well; the restrictor consists of what may be called excluding honey-boards; one for each side of the brood-combs, as well as one for the top, to prevent the queen from going into the sections or extracting combs at the sides and top of the hives, and also an excluder to prevent the queen from going out at the entrance.

I know there may be more honey obtained by having the surplus receptacles arranged upon three sides of the brood than when we depend upon the top of the hive alone. Again, there are not such a perplexing set of bee-spaces at the sides to coax the bees through as at the top, because brood-combs may be placed outside of the excluders, and the excluders moved toward the center of the hive. With the common excluding honey-board, having two bee-spaces, it takes about five days for the bees to work their way through them, and then they enter at the bottom of the sections, four inches from where they wish to begin work. The bees will never go into surplus receptacles thus arranged, until the honey-flow forces them to go *somewhere*. These claims may be tested by a proper arrangement of the bee-hive, as for instance: About ten days before the opening of the honey harvest, select a number of strong colonies and separate their brood-combs in the middle, and put in three courses of pound sections through the center of the brood-nest. At the end of ten days the outside sections will be filled with comb; but the center rows will seldom be worked upon any. If only one row of sections is put in they will be filled with comb in thirty-six hours.

This shows plainly that the bees work much more readily close by the brood. Again, two wide frames full of sections may be placed in the center of the brood-nest, with a slatted honey-board (or, rather, a slatted division-board) on one side, and nothing between the sections and brood on the other side. The foundation next the division-board remains untouched day after day, or until the honey harvest sets in. From 16 to 40 sections are filled with comb by the time the bees begin on the foundation after going through the slatted division-board, or the excluding honey-board, on top of the hive.

A NEW-FANGLED QUEEN-EXCLUDER.

Friend Dyke says I "seem to think four frames about the right number" for the restrictor. Exactly. Now suppose your colony contains the eight combs of brood. Of course, this may not apply to *my* colonies, because my hives hold twelve combs, and there are usually more than eight combs of brood; but if you are a bee-keeper who keeps up with the times we may be safe in counting on eight combs of brood for *your* colony. Separate the eight combs into three groups—four combs in the middle group, and two in each outside group. Attach the restrictor-excluders to the outside frames of the middle group, and arrange the three excluding strips in the bee-spaces between the frames. Now you will have the queen confined on four combs, and there will be two brood-combs on each side, outside of the excluders. In this way the effects of the excluders are entirely overcome, and sections or frames placed beside or alternated with these outside brood-combs will be worked upon just as readily as they will take possession of any comb alternated with the brood-combs. The line of queen exclusion or restriction, to bring the best results, should be drawn *within* the limits of the brood-nest instead of outside.

In the case of the excluding honey-board, used between the brood-nest and supers, it is considerable distance outside.

SPEED IN MANIPULATING HIVES.

On page 161 Mr. Dyke estimates ten colonies as a day's work in unqueening and destroying queen-cells. On the next page you place two hours' work at 40 hives, which would be equal to 200 per day and 1200 per week. Now, after ten years of practice I confess that, to find and clip the queen's wing, break a little capping for stimulation, etc., 60 colonies is a good fair ten hours' job. I can set 12,000 ems of type in ten hours, which is considerably above the ordinary speed of composition; but I am not nimble enough to manipulate 75 colonies of bees in the ten hours; so you see we have a variation as to a day's work of from 10 to 60 to 200 colonies —still further apart than were Messrs. Doolittle and Taylor as to what a day's work is *worth*. Who is the nearest right?

Whatever discussion any one may enter into regarding the cost of restrictors will not trouble me, as I am not in the notion of manufacturing them to sell, but *am* in the notion of maintaining my originality and priority of invention without such a dispute as was caused by the invention of bee-escapes, divisible brood-chambers, and swarm-hivers.

Several have intimated that Heddon hives with a queen-excluding honey-board on the top and bottom would accomplish about the same results. Certainly they would; but their greater expense is against them. The two excluding boards cost 40 cents, while the total expense of the restrictor is 47 cents, leaving only 7 cents with which to change from the common frames and hives in use to the Heddon style. To adopt restrictors is simply to change from one form of excluder to another. Hives and frames remain the same. C. W. DAYTON.

Greeley, Col., May 10.

[The *average* bee-keeper does not use one kind of frame or hive more than ten years. He either goes out of the business or runs on to some new hobby. So ten years would be about as long as you could safely count upon the use of your restrictors on the average, although they would doubtless last twice that length of time; so there would hardly be a balance of $35.00 in favor of the restrictors. Moreover, as it has been already observed by another, it seems to us there must be a good deal of labor used in handling so many pieces of metal; and if for any reason it is desired to see the queen or to inspect the brood surfaces, these pieces of metal must be handled at a considerable expense of time.

Referring to our footnotes, our understanding of the restrictor may be faulty; but a *restrictor* is something to restrict something, and, in the case of your device, to restrict brood-rearing. Either the device is not well named, or our understanding, as stated, was correct. The object of contraction is, to prevent excessive brood-rearing at the wrong time of the year; and we may add, also, to force the bees into the surplus. Your restrictor is a method of accomplishing contraction, and restricting the egg-laying to less than a brood-chamber of the ordinary L. hive. It differs from ordinary contraction, that you insert brood-combs or wide frames of sections in place of putting in dummies at the sides; and for such use we have no doubt it accomplishes a very useful purpose.]

RAMBLE NO. 60.

IN VENTURA COUNTY.

Many of the readers of GLEANINGS, I have no doubt, love to read, now and then, a good book of fiction. There is an interesting romance of Southern California, which gives an insight into the easy-going ways of Spanish life at about the time the Americans, with their greed for gold, acquired possession of the country. The story was founded upon facts, and the main characters in the romance were veritable inhabitants of the Santa Clara Valley, and many places are pointed out as landmarks mentioned in the story. I therefore recommend the "Story of Ramona."

MRS. M'INTYRE'S QUEEN-REARING APIARY UNDER THE ORANGE-TREES.

It was down this valley I traveled to find the home of J. F. McIntyre. I had almost made up my mind to say nothing about this portion of my travels, for Ventura Co. has now been quite well written up; but in looking the ground over I find that not half the wonders of this beautiful country have ever been told. About the first man I met at the Fillmore depot was Mr. McIntyre himself. He had an appointment to meet an association of schoolteachers, to give them a lecture on the insect-pests of the country, and especially facts in relation to the detection of scale that is so destructive to citrus-trees. The teachers would impart the instruction to pupils, and the rising generation would be better prepared to fight the destroyer. Orange-growing is, therefore, not all a thing of ease and profit, but has fully as many discouraging phases as bee culture.

Mr. M. directed me to drive his horse to his residence, about three miles up the Sespe, and he would return on the morrow. Now, that horse of M.'s is a remarkable animal. Mr. Root says it is patient. It is more than patient. After I had pushed on the lines, clucked at him, and said, "Gidup," I gave him a cut with the whip, and he stopped and turned his head around, and, with his big eyes, plainly indicated that he was thinking of a quotation from Shakespeare. Said he, in language that speaks plainer than words, "Stranger, this was the most unkindest cut of all." I admired the horse's intelligence, and thereafter allowed him to proceed at his own gait, and arrived at the McIntyre mansion after dark. I had met Mrs. M. in Los Angeles, and therefore felt at home.

Mrs. M., I will agree, can make good bread; but that isn't all of her accomplishments. She can make canned peaches, pears, apricots, and put up oranges in the following styles: Orange jelly, fritters, cake, pie, ambrosia, and heavenly hash. Then there are the four babies to train into usefulness, the organ to play, and queens to raise. I have a photo of Mrs. M.'s queen-raising apiary under the orange-trees. It is located under those beautiful orange-trees. An orange-tree has a peculiar charm about it—the deep-green foliage; the clean, trim appearance, and, in the fruiting season, the golden fruit. Four stands are placed around each tree; on these stands are two little hives, with frames the size of a 4¼x4¼ section. The frames rest on two bottom strips, and the whole little hive can be removed from the frames, leaving them free to be manipulated. The stands are also of sufficient height to work around without much bending of the back, which is an excellent provision when a dignified lady manipulates the hives.

I have no doubt Mrs. M. can run that whole apiary of 500 colonies, and do it as well as she can make bread. She comes honestly by her bee-lore, for, as the most of bee-keepers know, she is the daughter of Mr. Robert Wilkin, one of the pioneer bee-keepers of this portion of California, and she has been used to the hum of bees all her life.

Mr. McIntyre has been written up so much that you would hardly know that he had a helpmeet of ability, and I hope the above will set her right before the public.

Mr. M. returned the next day, and we made a short call at the apiary of Mr. Keeney. A description of his apiary tallies well with others. Let me describe nine-tenths of the California apiaries in a few words. Pasturage, bees, hives (good, bad, and indifferent), stones, a 10 x 12 honey-house (sometimes only a frame covered with burlap, or in Mexican style of adobe); a galvanized-iron honey-tank; sun wax-extractor; badger, skunk, squirrel, and gopher holes all around; sometimes a little 10x12 cabin to bach it in through the honey-season.

Mr. Keeney's apiary was near his residence, and was in very good trim. Mr. K. himself is not only a bee-keeper, but he is also a cultivator of the vine, and produces quantities of raisins. If the bees get troublesome he covers the grape-trays with wire cloth, so the fruit-growing and bee culture go hand in hand, as they should.

From Mr. Keeney's I proceeded to Santa Paula. Here Mr. Wm. T. Richardson resides, and is owner of 1200 colonies of bees. He is a contractor and builder; but when the honey-season opens, with his family and a crew of helpers he goes from one apiary to another until the flow ceases. His bees were out in the mountains on what is called the Sime ranche. Mr. R. Touchton also has kept bees in Santa Paula for 16 years, and is one of the veterans in the business. In a good season he can take ten swarms and increase them to one hundred.

Mr. C. W. Metcalf, of Santa Paula, is a metal-worker and tinner, and has invented a new reversible extractor. The baskets are operated by a sprocket-chain, very ingeniously arranged around several sprocket-wheels. The machine works very well, and the inventor is selling a number of them.

While the foot-hills and the mountains are rich in honey, the fertile bottom lands are especially adapted to the cultivation of beans; and this is probably the greatest bean-producing valley in the world. The largest bean-ranch contains 2200 acres, and produced 1030 tons of lima beans, making several solid railroad trains of beans from one ranch. About 1500 carloads from the county were handled, and the value was $133,000.

In Ventura we find many bee-keepers. Mr. Mercer, well known to the fraternity, is in the business to the number of 1200 swarms. Mr. M. has four stalwart sons to help him, and is a general driver in business. He and his sons are all engaged, not only in bee culture, but also in carpentry and building, and have a planing-mill to aid them in their various enterprises, and are doing a great amount of business in the building line, all the time adding to and extending the size of the growing town of Ventura. In the honey season, he too, like Mr. Richardson, of Santa Paula, goes out to his apiaries with his whole family and his horses, and the cow and the calf and the colt. Our photo shows the train coming in after the conclusion of the labors of the season. The colt is mounted in the wagon; the head wagon has the inevitable trail wagon behind, and Mr. Mercer is driving.

Mr. Robert Wilkin, of Ventura, has retired somewhat from the activities of the pursuit, though he still has apiaries in a distant portion of the county. He has a very pleasant home, presided over by his youngest daughter. In his front yard I noticed a pretty fountain and reservoir with goldfish. His house and surroundings denote refinement and comfort, and I believe it all came through bee culture. In his palmy days he was ambitious to secure a crop of 50 tons of honey, and accomplished it. He then sought a market for it in England, with good results. Since living in California he had bought and sold many apiaries. I find that apiaries are more salable property in California than in the East. Every season those who wish to enlarge their business are looking for apiaries, either to purchase or to rent; while in the East, if an apiary is sold it has to be broken up and sold to various parties, unless the purchaser buys bees and farm. Here the apiary is located upon government land, or land that can be used for nothing else, and the purchaser buys the bare bees, hives, and fixtures.

Mr. Wilkin is a progressive man, takes an active part in the prosperity and upbuilding of the town in which he lives, and has also been an active factor in the formation of bee-keepers' associations.

Mr. Walker, a few miles out of Ventura, combines bee-keeping with ranching. He has several thousand acres of land, and cattle and horses. We read of the "cattle on a thousand hills." Here it would seem there are a thousand cattle on a hill. Fruit culture is, however, Mr. Walker's hobby, and all kinds and of the best

THE WAY A CALIFORNIA HOUSEHOLD MIGRATES TO AN OUT-APIARY.

grown are found on Mr. W.'s ranch. His bees were afflicted largely with the trembling disease, or paralysis. I fear, however, that Mr. W. has "too many irons in the fire," and the bee iron is the one that suffers.

The reader will perhaps begin to think that the above enumeration of bee-keepers, with their hundreds and thousands of colonies, is enough for one county; but there are more to follow. Not half of the wonders of this beautiful country have ever been told; neither can they all be rehearsed by the RAMBLER.

CARRYING BEES FROM THE CELLAR, ETC.

HOW AND WHEN TO DO IT SO AS NOT TO HAVE THE BEES FLY OUT.

In a back number of GLEANINGS I find this question: "I see quite a good many of the brethren who practice cellar wintering advise putting the bees in the cellar without any bottom-boards to the hives. I should like to have them tell me how they manage in the spring to keep the bees from getting in an uproar when being placed on their summer stands." I have waited some time to see if some one else would not answer this question, as I should like to hear the plans of others; but as no one has done so, and as I have a request privately, to answer this question, I will try my hand at it.

One of the most dreaded things which I used to do was the setting of the bees out of the cellar, where the hives had no bottom-boards on them during the winter, as the bees would fly out in spite of all the carefulness in handling which I could do, and these bees which flew out were the most wicked to sting of any which I had to encounter. Also, all the bees which flew out on the journey from the cellar to their stands apparently marked the spot where they left the hive, and would hover about there for some time after, ready to sting whatever came along, as well as being a loss to the colony and the apiarist. Studying on the matter for some time I finally resolved to smoke each colony as soon as out of the cellar-door; and upon trying it I found that smoke would drive the few bees that were ready to rush out and fly, right back to the cluster, where they would stay for a moment or two before attempting to fly out again. In this way I got along very well unless the stand the colony was to occupy was so far from the cellar door that the cluster would break up, and a general rush would be made for the light and warm air which greeted them, after being in the dark cellar four or five months.

One day I thought of the spring wheelbarrow, so I tried setting them on that and wheeling them to their stands. This was much easier for me; but there was a certain amount of jarring to it, in spite of the springs, that irritated the bees so that they were ready to rush out *en masse* when I was lifting the hive from the barrow to the stand; and often the bottom of the barrow would be covered with the bees which had come down before the stand was reached. This saved all of the bees, as they all marked the right spot, but did not do away with the stinging from the bees which flew in the air before the hive was on the stand. I next took an old sheet and wet it, and, after doubling, put that on the bottom of the wheelbarrow and up over the front end-board. This took off all the jar, and also kept the few bees which might straggle down on to the bottom of the barrow from staying there; for as soon as they came in contact with the wet sheet they would run back.

I now went into the cellar, took a hive of bees, and placed it on the sheet, tipped it up a little in front so as to blow under three or four puffs of smoke, lowered it to its place, and put a wet rag down in front over the entrance, when I had the thing just as I wanted it, for I could wheel them wherever I wished, without their apparently breaking the cluster at all. The wet sheet gave a chill to the air inside of the hive so the bees did not feel the warmth, and the wet rag at the entrance excluded the light, so that they apparently did not realize but that they were still in the cellar till they were safely on their stands. I now have no dread of setting the bees out of the cellar, and they also are not in such a hurry to rush out but that they properly mark their entrance, thus saving the mixing of bees so frequently occurring in the old way, by which some colonies have more bees than they should, and others being deficient.

WHEN SWARMS MAY BE EXPECTED.

A party wishes to know when he may expect swarms from his colonies. It should be no trouble to tell when the first swarm *of the season* will issue, with any one who is thoroughly conversant with the inside of a bee-hive; but when the swarming fever runs high, swarms may be expected contrary to almost any of the rules. With me I never had the first swarm of the season issue except under the following conditions, which are those upon which the larger part of all first or prime swarms issue, except when we have the swarming fever as mentioned above. The hive becomes populous with bees and brood; drones are under headway in the drone comb, and eggs are deposited in the queen-cells. These eggs hatch out, and are cared for abundantly by the bees, the queen-cells being sealed nine days after the egg was laid by the queen, and six days from the time the larva hatches. Now, if this cell is sealed previous to 6 o'clock A. M., the swarm will issue on that day, if the day is pleasant; if not pleasant, then the next pleasant day. If the cell is sealed after 6 o'clock, then the swarm, as a rule, will not come till the next day. This I believe to be the rule with all first swarms, and a positive thing with the first swarm of the season, after twenty years' experience. Some writer has said that the time of expecting swarms is when we find several queen-cells which will hatch in 24 to 48 hours; but I can not but think that this is a mistake. This state of affairs *may* exist where a swarm has been kept back by bad weather; but where one swarm issues under these conditions, a hundred will issue under the conditions described above, and five issue under the swarming fever, under which fever they generally issue as soon as the eggs are placed in the queen-cells, or as soon as the larva hatches. Some Italian colonies will send out swarms under a high pressure of swarming, without any preparations for swarming being made, except for drones; but I never knew a colony to wait till within 48 hours of the time of the hatching of the first queen-cell, unless kept back by unfavorable circumstances.

G. M. DOOLITTLE.

Borodino, N. Y., May 14.

[Bees should never be carried out of the cellar on a warm or hot day, or else, with all the precautions taken, they will fly out and hover about the cellar-opening for hours; and, worse than all, attack persons going to and from the house. A cool morning should be selected, when few if any bees are flying, and the entrance, as Doolittle says, smoked a little, to drive back the guards and those chaps that are ready to fly out. We find it very convenient, also, to close the entrance entirely in some cases, and, after the hive is set carefully on its stand, remove the entrance screen or stopper, using a little smoke to prevent the bees from flying out too strongly at first. Colonies that are on our fixed Hoffman frames can be set on a wheelbarrow, and wheeled quite a distance; but as the barrow jars the bees, the entrances should be closed, as above directed. If the colonies are light, three can be put on the barrow at once; but if heavy, only two, putting the heavy one next to the wheel, crosswise on the barrow. Now, in wheeling colonies it will be found mch easier to *draw* the wheelbarrow than to *push* it, because it is easier to draw a vehicle very gently over an obstruction than to push it. We have just been trying, and know from experience.]

GRADING, AGAIN.

DR. MILLER CONSIDERS THE SUBJECT FURTHER.

I had hoped that more rapid progress would have been made in the matter of grading, for I believe, as many others do, that it is a matter of great consequence. At the outset it was admitted that there were difficulties in the way, and this was very plainly seen in the difficulty of coming to any kind of agreement at Albany and at Chicago. Instead of thinking that sufficient has been said about it in print, and that the matter should rest until the meeting at Washington, it seems to me that it would hardly be lost time or space to keep up the discussion until that time.

One reason I have for thinking so, is, that different localities will have different views about grading, and in the public print there is a fuller representation, or, at least, a more equal representation, of all parts of the country, than we are likely to have at any one convention; for at every convention there is always a stronger representation from near than from distant points. True, this may be less so than usual at Washington; still, I expect it to hold true to a great extent.

I think that neither at Chicago nor at Albany did any one advance the view that it was either useless or bad to adopt a system of grading; the only difficulty was, to come to any agreement as to what it should be. Since, then, however, some one has suggested that it would not, on the whole, be a desirable thing, and that it might be subject to abuse, an inspector being necessary to carry it out, and the inspector might not act in the interests of the producer.

Personally, I think I can get along independently of any established system of grading, and I have no doubt that others can. If I have a class of customers with whom I have been dealing for years, and if they have entire confidence in the manner in which I have graded my honey, it is not very unnatural that I should be somewhat averse to making any change, and on that account I may think it best not to agitate the subject of grading. But if it should be for the general good, I should be willing to yield, especially as there is nothing to prevent my going on just as I have done in the past with any established set of customers.

But a more conclusive answer to any who may not think it best to have any system of grading is the fact that we have it already. Every time you look at the market reports in the bee-journals, you are making use of a system of grading. "Fancy," "fair," "dark," "No. 1," "No. 2," etc., are simply terms indicating grades, and they will continue to be used in an arbitrary way, not satisfactory to any one, until something better can be agreed upon. So it is not a question as to whether we shall have any system of grading, but whether we shall have a better one. I do not see the necessity for an inspector after we agree upon a better classification, any more than there is a necessity for one now. If I sell Smith, at Jenkins' Corners, two cases of honey, it will hardly be necessary to have an inspector appointed at Jenkins' Corners, but it may be very convenient for Mr. Smith and me if we have something definite to go by in our dealings with one another.

But when we get down to the business of deciding what the best system of grading is, then the trouble begins. What suits one doesn't suit another. B wants nothing but white honey in the first grade, and C says his Spanish needle is better than white clover. The suggestion has been offered, that a different system of grading must be adopted for different regions. Will not confusion arise from that? Is it necessary?

Not having settled upon any system of my own, I have been anxiously watching to see what might come up to help us out of the difficulty. The plan of J. A. Green would suit me—suit me well. But it will not suit all. Either that or the Albany or Chicago might be an improvement on the plan now in use, perhaps with an appendix to suit some particular cases. But on the whole I am inclined to think that something based in some degree on the plan presented by W. C. Frazier may be most feasible.

The objection is urged, that it is too complicated—makes too many grades. Ten grades may be easier to manage than five, if there is a simple system about the ten that does not prevail with the five. If I am to select a coat, it may confuse me somewhat when you describe nine different kinds without letting me know that any one of them bears a relation to any other. But if you tell me that there are three kinds of cloth used in making the nine coats, and that I can have either kind of cloth in a Prince Albert, a sack, or a cutaway, the thing looks simple enough. Isn't it somewhat the same way in grading honey? Let there be first a grading according to the appearance of sections and combs, independent of the honey contained, and, having this done, it will be easy to say what material the coat shall be made of.

Certainly there would be one great advantage in some system of this kind; and that is, that all would be more likely to agree upon it than upon any system which should pretend to make gradations by having honey from one source stand above that from some other source; for a perfect section of white clover would be exactly the same as a perfect section of buckwheat, barring the difference in the contents of the cells.

Can't we then agree first upon something for fancy, first class, second class, and possibly third class of, say, clover honey? Perhaps there's no need of any third class. Now, if we have agreed upon what is first and second class of clover, will not that be exactly right for Spanish needle or buckwheat or what not?

Then it remains to classify, if possible, the material in the cells. I doubt whether there will be much trouble in bunching white clover, linden, alfalfa, and other light honeys in one lot under the name of white honey. Possibly amber and dark will include the rest, but I believe it was decided at Albany that buckwheat must stand by itself. Why should it stand by itself? Perhaps because it is better known than some other varieties, and because tastes differ widely concerning it, some considering it the best kind of honey, while others think it is the poorest. Well, even at the risk of weakening some other things I have been saying, let me tell you that, as the public becomes better educated as to different kinds of honey, it is quite possible that buckwheat is not the only kind that will stand by itself. Just now the dear public doesn't know a section of white clover from one of linden, white sage, alfalfa, fireweed, or any other that looks white. But a bee-keeper has his preferences for these different kinds, and the public will too, just as soon as it is better posted. So, if we settle on three or four grades based on the make-up of the section, independent of the source of the contents, we can then start in with white, amber, dark, and buckwheat, if you choose, and then there will be no difficulty afterward in adding particular kinds along with buckwheat, just as rapidly as there is any need for it.

If you say, "But we don't want more than four or five grades all told, taking into account the kind of honey and every thing," I reply that, if there *are* more kinds, then you may as well recognize them. There's buckwheat, that stands out by itself; it isn't amber, it isn't dark; it's buckwheat, and you can't lump it in with any thing else. Isn't it possible that Spanish needle ought just as much to stand by itself? Of course, as long as the public make no discrimination among the different light honeys it is well enough to put them all into one class and call them white; but our system should be such as to allow a change any time, if for any reason the public want any one of the whites singled out from the others.

Let me repeat what I have been trying to get at: That the three or four grades depending upon make-up, independent of the flowers from which the honey was gathered, is something that ought not to be so very hard to agree upon, no matter how much we may differ as to the relative merits of the different honeys themselves; that part—that is, the appearance—*can* be graded. I doubt whether you can grade with any general satisfaction the different kinds of honey. Plenty of people consider buckwheat a higher grade of honey than white clover. If you attempt to call one or the other first grade, you make an invidious comparison. But you may *classify* the kinds of honey without stroking any one's fur the wrong way. If you classify very simply as *light* and *dark*, that's not saying which is best. So it seems to me we might agree on a few *grades* based on appearance, and then more or less *classes* based on contents.

I know that most of us are pretty busy now, but I do hope that we may have a fuller exchange of views on this subject before we meet at Washington.

C. C. MILLER.

Marengo, Ill.

[We are heartily in sympathy with you in your efforts, doctor, to get a uniform system of grading, but our faith is weak. As bee-keepers will not all use the same kind of hive, so we doubt whether they would agree upon one system of grading. However, we do not wish to throw cold water upon the attempt to secure this object, worthy as it is; and we therefore submit again, for easy reference, the system of W. C. Frazier, which Dr. Miller seems to favor more than a'l the rest.

COLOR.

Grade "A."

White honey, clover, basswood, and kindred honeys, which are white or light colored.

Grade "B."

Honeys which are yellow or amber, such as alfalfa, Spanish needle, etc.

Grade "C."

All dark honeys, buckwheat, etc.

CONDITION.

"Fancy."

Combs which are well sealed, straight, and even; sufficiently attached to ship without breaking; combs and sections unsoiled.

"Choice."

Combs well filled, firmly attached; not more than one-fourth of the surface can be travel-stained or unsealed, but may be bulged.

"Family."

All honeys whose condition does not warrant placing them in either of the above grades.

Now, in support of the above I have not much argument to offer, as I think it is simple, not nearly as complex as any that have heretofore been offered; also, by it all honey raised in this country could be graded, and its exact quality known. For instance, the best honey from California would be marked "Fancy B." The regions that produce buckwheat honey would mark their best comb honey "Fancy C," while those who are fortunate enough to secure white honey in first-class style could mark their product "Fancy A." The grade marked "Family" will find a much more ready sale, at a better price, than the same honey would bring if marked 3d or 4th grade. It would not take the honey-producers long to learn that "A" means white, "B" yellow or amber, and "C" dark, and then to grade according to condition; and there is no use in having four or five different grades so that it would take an expert to pack honey. The three grades of condition are enough—"Fancy" for the best; "Choice" for good honey, slightly bulged or travel-stained; "Family" for what's left after the two above grades are taken out. Then the letters can be used for grading extracted honey; as it is graded mostly according to color, they would be as applicable to extracted as to comb.

Now, is it not possible that we can adopt this in the manner proposed by Dr. Miller, with some very slight changes, or, at least, agree enough upon it so as to be able to submit it to the North American when we assemble at Washington?]

IMBEDDING WIRES IN FOUNDATION BY THE USE OF ELECTRICITY.

A CHEAP BATTERY FOR EVERY ONE.

We had intended, as announced, to write up more fully, and illustrate, the method of imbedding wires by electricity; but the following, from the *Bee-keepers' Review*, covers the subject so well that we thought we could do no better than to copy it entire:

To make a battery, take three one-quart fruit-jars (glass), and cut off the tops just below the taper. The best way to do this is to cut with a glass-cutter's diamond, then tap lightly with a small hammer or the head of an iron bolt, all around inside the jar, just opposite the cut made by the diamond, when the top will come off just where the diamond made the cut. Another way is, to file a groove around the jar, or grind one with an emery wheel, then tap with a hammer. This is the way I do it; and although it is not so perfect as the above methods, yet it answers the purpose. Take a red-hot poker and move it slowly around the place to be cut. When I have been around the jar about twice I drop about a tablespoonful of cold water on the place whence I remove the poker, when the top will break off, but not always so very straight.

Out of ⅜ hard wood make a round cover, ½ inch larger all around than a jar, for each jar. Scribe a circle on each cover, one inch less in diameter than the inside diameter of a jar. Make five or six holes through this circle, having them equally distant from one another, and of such a size that a carbon will fit tightly in each hole. (See Fig. 8, C, C, C.) The center hole is for zinc. The more carbons used, the higher the tension of the battery. Get carbons long enough to reach within ¼ inch of the bottom of the jar when complete. [In this place, waste pieces of carbon long enough for this purpose can be obtained of the electric-light trimmers, simply for the asking.—ED.] File a notch around one end of each carbon, ¼ of an inch from the end. (See Fig. 1.) Put the carbons half way through the cover, and fasten one end of a No. 20 *copper* wire around the notched place in one carbon; then wind it around the next carbon, and so on, until the last one (in that cover) is reached; leaving one foot of surplus wire for making connection. Shove the carbons through the cover until the shoulders formed by the wires rest on top of the cover. A little melted resin and beeswax poured around the wire and carbons on top of the cover will make permanent connections.

A piece of zinc (cast from any old scraps) ½ to ¾ inch in diameter, with a shoulder and a wire cast in it (see Fig. 2), the zinc to fit loosely in the cover, is next needed. Amalgamate the zinc, and its consumption will be less rapid. To do this, take one part sulphuric acid and two of water and put in a saucer with some quicksilver. Rub the zinc with this mixture, using a woolen cloth, until the zinc is bright. Amalgamate only below the shoulder.

With both zinc and carbons in place, put the cover on the jar and fill the latter with water to within ½ inch of the cover. Take off the cover and mark the water-line by pasting a strip of paper on the outside of the jar, just at the point reached by the water when the cover is off. Treat all three jars and covers the same.

To make the solution, take one part commercial sulphuric acid and seven parts water. Pour the acid slowly and gradually into the water, stirring it with a glass rod or hard-wood stick. To each quart of this mixture add four ounces bichromate of potash, or about three ounces to each jar, stirring it until it is almost dissolved. Pour the water from the jars and pour in the solution until it comes up to the aforesaid water-line; put on the covers; place the zincs in their places and "connect up." (See Fig. 3.)

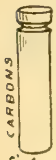


Fig 1

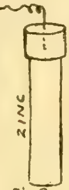


Fig 2

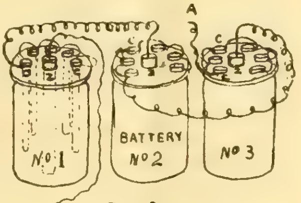


Fig 3

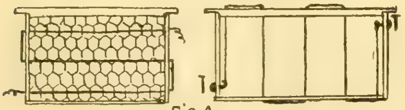


Fig 4

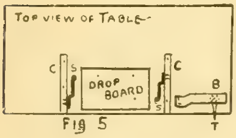


Fig 5

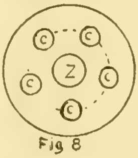


Fig 8

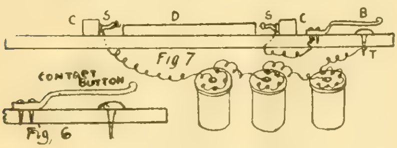


Fig 7

Fig 6

To connect the battery, take the surplus wire from the carbon of one jar and connect it to the zinc of the next jar. Take the carbon wire from *this* jar and connect to the zinc of the third jar. Now you have two surplus wires left—one from the zinc in jar No. 1, and the other from the carbon in No. 3; i. e., positive and negative terminals. Take in your right hand the surplus wire from No. 3 and touch it to the surplus wire of No. 1, and you will see quite a flash of lightning. You will then know that the battery is in good working order. Don't be afraid of a shock, for there is none where there is no magnetism, and there is no magnetism about a naked battery. You might burn your fingers, though, by catching hold of the small wire in the brood-frame when the current is on.

A word of caution just here. Remove the zincs from the solution as soon as you are through using the battery, otherwise the solution will become overcharged with sulphate of zinc, which renders it worthless. Make all connections as *short* as possible, as this style of battery is of low tension, and would not heat 50 feet of wire 2°.

Oh, yes! it will burn a four or five volt lamp, as bright as day, for a few minutes; but fifteen minutes with a closed circuit at any one time would ruin the carbon element for ever; but if the battery is used simply for imbedding wires, the carbons will last for years. Before connecting, scrape or emery-paper all parts to be connected. Soldering them is better. For all connections, use copper wire, about No. 20.

[If a battery of three jars proves too weak, more jars can be added until the desired result is obtained. If any one should prefer to buy batteries instead of making them, they can be bought (those called the Diamond Carbon) at $1.25 each, of the Electrical Supply Co., 102 Mich. Ave., Chicago, Ill.—Ed.]

To wire a frame, attach one end of the wire (use No. 30) to a tack in the end-bar (see Fig. 4); and after the frame is wired, attach the other end to a tack in the opposite end-bar; the tacks to correspond with metal springs, S S, on cleats, in Fig. 5. No one part of the wire must touch another part throughout its length, nor any part be connected to the same piece of metal that another part is fastened to, as, if your wires cross each other, there will be what is called a "short circuit," and the current will take the shortest route back to the battery, leaving part of the wire "dead." If you undertook to imbed crossed wires, only that part would be imbedded that the current heated, and you would count the whole thing a grand failure; yet if, in your style of wiring, the wires *do* cross, put a small piece of paper between them, just enough to keep them separate, and you will meet with no trouble at all.

To rig up a table, make a drop board, just thick enough so that, when nailed to the table, and a wired frame laid over it, the frame will rest on the table, and the wires will be the proper distance above board; i. e., half the thickness of the foundation. Next make two square cleats, as thick as the end-bars of a brood-frame are wide. Make two metal springs (thin brass) as wide as the cleats are thick, and fasten to the cleats with screws (see Fig. 5). Nail the cleats, one on either side of drop board (see Fig. 5), so that, when the end-bars of the frame rest between the cleats and drop-board, the tack-heads (to which the wire is fastened) will press tightly against the springs. Have the springs two or three inches long, so if you don't get the tacks always in the same place on every frame the tack-heads will press against the spring anyhow.

To make the contact-button, take some of the same metal (brass) as mentioned above, ¾ inch wide and 3 inches long, and bend it in the shape shown in Fig. 6, and screw it to the table, six inches or thereabouts, to the right of the right-hand cleat. Just under the spring, or raised end, drive a brass-headed tack, of the kind used in perforated chair-bottoms. (See Fig. 6.)

To connect the battery with the table (make all connections *under* the table for convenience as well as looks), take the surplus carbon wire in cell No. 3; run it through a small hole made with an awl close to the tack in contact-button; wind the wire around the tack between the table and the head of the tack; drive the tack home, and *that* connection is complete. (See Fig. 7.) Make an awl-hole through the table, alongside of one of the screws that hold the contact-button to the table, another awl-hole close beside the spring, in the *right-hand cleat;* put one end of a short piece of wire around one screw in the contact-botton; drive the screw home. Run the other end of the wire down through the hole made in the table, and up through the hole alongside of the spring in the *right-hand cleat*, and fasten the end of the wire around the screw and drive the screw home. (See Fig. 7.) Now take the surplus *zinc* wire in cell No. 1 and connect it to the spring in the *left hand cleat*, and your table is complete. (See Fig. 7.)

To operate the "machine," place your wired brood-frame over the drop-board with the top-bar from you. See that the tack-heads press against the spring in the cleats; place your foundation on the wires; "press the (contact) button, and the electricity does the rest." A man with nimble fingers could do ten a minute. Don't you think I have made it all plain? W. E. Dages.

Morris, Ill., March 26, 1892.

FLORIDA.

LENGTH OF THE HONEY-FLOW; RATTLESNAKES.

The first thing when I take up GLEANINGS is to look up in the table of contents the word Florida; but my eye is very seldom gratified. How often I wish that the talented ones of Florida bee-keepers would give us some items oftener than they do!

Well, friend Brown has taken great pains in giving us his annual Florida report. I see by it that some people lead us to think that they get honey the "year round." Do they mean to get a crop every day? Here in Orange County I can get honey only in March, April, May, or July and October. Between the three distinct crops of orange-blossom, palmetto, and goldenrod, there is quite a cut-off.

Northern bee-keepers are sending their bees here to gather in fine orange-blossom honey, and, I suppose, get back north in time for the clover crop. A Mr. Lane, from Michigan, has visited my apiary, and consulted me with a view of moving some bees here.

Dr. Harry Stites, of Harrisburg, Pa., has first sent a carload of hives to Jupiter, on the Indian River, and, a week after, he sent a carload of bees. They must have hummed in that car. This was in March, our swarming time. My first swarm came out the 15th of March.

I never thought that first swarms would despise nice orange-trees as an alighting-spot, and would take themselves away to the top of a pine-tree a hundred feet or so from the apiary. Well, I had such a case. Two sturdy negroes blazed away with their axes on that giant, which finally came down with a terrific crash, bees and all, half of them mashed to jelly; but the other, which I suppose was the better half, went back to the hive sadder, but much wiser, to all appearances.

Friend Olsen, from New Smyrna, writes me that he lost 22 colonies out of 50, through some greedy bears. Bruin evidently thought himself sadly in need of a laxative. Olson gave him some strychnine to put him in order. I do not object to bears, especially in the oven; but, as the croaker says, I have no use for the rattler. In finishing up my twenty-acre vineyard, one of the boys very nearly stepped on one of those "varmints." It was dispatched before doing any damage. The rattlesnake measured 5½ ft., and was the happy possessor of four rattles and a button. Mr. Root, if you come down here next winter, as I know you must do, I will show you that skin. J. B. LAMONTAGNE.

Winter Park, Fla., Apr. 25.

CRANKS.

ARE THERE ANY AMONG BEE-KEEPERS? THE GREAT INVENTORS IN BEEDOM.

Some time ago I was talking with a man about bees, and he made the remark that all bee-keepers were cranks. I am a bee-keeper on a small scale. This man knew it, and it did not take me long to recall my rhetoric to this extent: Major premise, all bee-keepers are cranks; minor premise, you are a bee-keeper. Conclusion (!).

I had never before been called a crank in such an indirect way, and it rather surprised me. He went on as though he were saying an undisputed thing; that he did not know whether they were cranks before they commenced, or whether the pursuit made them cranks after they took it up; but cranks they were, all of them.

Since then I have often thought of this conversation, and wondered if there might not be a grain of truth in it. There is one point of resemblance to cranks which we must acknowledge. I never knew a bee-keeper of two years' experience but had a hobby. This hobby, however, changed as he gained experience. He rode them to death in short order, but still he had to ride, and he took a good many trials before he felt properly mounted. A peculiarity about this is, that every one thinks his hobby is different from and a little better than that of any one else.

Don't you remember driving along the road and coming to a farmhouse with an orchard and lots of bee-hives scattered among the trees? The sight of the hives gave you a sort of fellow-feeling, and, notwithstanding you were a perfect stranger, you made up your mind to go in and have a little chat. So you tied your horse at the gate, and followed the family path round the house. There stood the bee-keeper by the well, with some of his neighbors who had come over to make him a call. How did you know him? Oh! I can't begin to tell all the little details of appearance by which you recognized him; it was all these put together—his *tout ensemble*.

After introducing yourself you went out to see the bees, and in five minutes you learned from your host that he "s'posed" there wasn't another man in the world that kept bees just as he did. You were instantly on the *qui vive* to learn something new; but five minutes more disclosed the fact that his peculiarity consisted in being just seventeen years behind the times.

I have heard that cranks are great patrons of the patent office. This may be an additional point of resemblance, for I believe bee-keepers have a penchant in that direction. They are great inventors, anyhow, though some of them claim that the monopoly of a patent is wrong, and contrary to the spirit of the profession. This smacks of sour grapes, however. If one finds hidden treasure, ought he not to be entitled to it, even if some one else has pointed him on the road? Still, there are many who have lived up to this doctrine, foolish as it may seem, for I have met the inventors of all the most important features of modern bee-keeping, and they had not taken out patents, nor derived one cent of benefit from their ingenuity. For instance, within the last year I met two men who were each the first to make and use comb foundation. They told me so themselves. Dadant must certainly be mistaken when he ascribes this invention to Johannes Mehring. I have also recently had the pleasure of meeting face to face the inventor of the honey-extractor, and it was not Major Di Hruschka either. He offered to take me out to his shop and show me the crank to his old original extractor; but I did not have time. I was satisfied to see him. I regret to say that I am not acquainted with father Langstroth, but I have seen the man who invented the hanging movable frame; also the man who first imported Italian bees—every one of him.

It has been a source of surprise to me that the leading bee-papers do not use more wisdom in selecting the contributors to their pages. Why listen to such green hands as Doolittle, Miller, Cook, and Root? They are still fussing about hiving swarms, prevention of increase, wintering, springing, maximum product to minimum expense, etc., while the woods are full of men who solved these problems years ago, and who would be glad to tell about it. They are not all like the party I met a few days since. He was never bothered with increase — oh, no! easiest thing in the world to prevent; but he kept the method to himself. All the best bee-keepers of his vicinity had watched him time and again without learning the secret of his manipulation.

These things, I say, sometimes make me think that perhaps bee-keepers are cranks; but at other times I reach a simpler conclusion; namely, that, in their business, bee-keepers are the greatest liars on the face of the earth.

ONE OF THEM.

THE DUDE BEE.

A BURLESQUE ON ALL DUDES.

This is not a new race of bees, but only a new name for an old-fashioned bee that may be found in almost any hive at certain times, and in many hives is often found in too great numbers. The reason I propose to give him this name is because the old name has become such a chestnut, and has been abused, not only by the poet but by the prosaic writers, when the writer or poet wishes to compare some one or some thing to another thing that is extremely indolent and useless, just as the writer who is at a loss for a subject writes about all that he does *not* know about the busy bee.

The dude bee, like the dude of the genus homo, seems to be a sort of "necessary evil." The two are in many respects considerably alike, while in other respects they differ. The one wears trousers in which the stripes go up and down; while on the other, if he wears stripes, they go around or across. The dude bee, however, never wears a fancy vest and cutaway coat; but he makes a loud noise, and seems to wish to be noticed by every one when out parading, or courting a damsel bee.

Many of the text-books teach us that the dude bee is a son of his mother, and is not contaminated with the blood of his mother's husband; but for my part I am like G. M. Doolittle in my opinion on this matter. We know that a virgin queen may become the mother of dude bees, and in this case they would surely be of the same blood as their mother; but with all this I am inclined to believe (from observation) that an Italian queen mated with a black dude will produce dudes of the same or similar blood as her worker progeny.

Some dude bees are black, some have a few yellow stripes, and others have nearly the whole waist yellow, or of a reddish hue. The latter are the kind of dude bees to keep if you wish to breed five-banded, red-clover, golden, platinum-point, ne plus ultra queens. I don't know how the Punic dude bees look; but I suppose they are just about as black as the ink with which this is written. But I don't suppose they fly when the entrance is plugged shut with snow and ice. As a rule, though, the Italian dude bee does not like to venture out except on pleasant days.

A few days ago I noticed the bees running about on the alighting-board of a nucleus, as if they had lost something which they were trying to find. As they had a queen about five days old I concluded that she had gone to take a ramble (flight) in search of a dude; so I sat down to watch the proceedings. The day was rather cool and cloudy; and as dude bees are like the dude of the other genus in this respect, not many had ventured out. In a short time I saw the queen near the entrance, and supposed she had returned from a flight. The worker bees would chase after her and pull at her while there; but soon she flew away, and was gone four minutes by my watch and chain, when she returned and remained on top of the hive about half a minute by the same watch and chain. Then she flew away, and was gone about one minute. This she repeated two or three times, and finally went into the hive without having met a dude bee. Soon the worker bees all went into the hive, and were as quiet as usual. Since then the weather has been cool, cloudy, and rainy, and I fear she has not met her prince dude bee yet, as the dude bees have flown scarcely any; and I fear that, if the weather continues this way many days, there will be a chance of her becoming an old-maid bee. Here we usually have plenty of dude bees during apple bloom; but most of them are generally killed off during a cool spell that comes between that and white-clover bloom. Such has been the case here this year.

Many years ago some of the bee-keepers of the old brimstone school thought that the dude bees sat on the eggs that the king laid, and hatched them out; but I can not believe this, as the workers sit down on the dude bees as soon as they have given up the notion of swarming, and yet the eggs in the combs hatch just the same without the dude bees to sit on them.

To the queens that produce good workers and dude bees with yellow pantaloons, we give plenty of dude comb; but those that produce poor workers and black dudes are deprived of all or nearly all dude comb. In this way we are likely to have real nice dudes. Dude bees sometimes poke their heads through the perforations in zinc honey-boards, and then turn one-fourth round, and hang themselves; then the workers pull them to pieces and try to get them out of the hive.

The dude bee is not to be blamed for not working, as he is not able to, even if he were willing; and, altogether, he is a very useful animal at times, even if he does not sit on the eggs and hatch them out.

This name is not patented; and any one can call his bees with a broad back and a loud hum, "dudes" if he wants to.

S. E. MILLER.

Bluffton, Mo., May 12.

THE BOYS, THE CHIPMUNK, AND THE HORNETS.

Two boys, young and gay, left school one bright day
To rove in the woods for a while;
And they jumped with delight, for the very first sight
Was a munk on the old woodpile.

They thought not of books, nor of still-running brooks,
As the sport of the day had begun;
For all of you know, who were boys long ago,
That, in puggling munks, there is fun.

But the chipmunk so bright soon skipped out of sight,
In the end of an old hollow rail;
And the boys, full of tricks, tried with split-ended sticks
To pull the munk out by the tail.

So they puggled and twisted, and long they persisted,
And rubbed up the ears of their dog;
But the chipmunk so red had a scheme in his head,
So he out, and ran under a log.

Now, an old hornet she, of her young in this tree
Had sought to raise up a good batch;
And all of you know, that four years ago
Was a good one for hornets to hatch.

But the boys' eyes were full (of Australian wool),
And they looked out for nothing but game;
So they puggled the log, and sicked on their dog,
And this is just where they were lame;

For each hornet within, rushed out with a pin
To tickle the boys, young and bold;
While they jumped over hummocks, rolled heels over stomachs,
And the rest of my story is told.

CHESTER OLMSTEAD.

East Bloomfield, N. Y., May 10.

CHAFF BOXES AND WINTER LOSSES.

IN FAVOR OF ABSORBENTS.

I have been much interested in the articles on wintering with sealed covers, and was very nearly of the opinion that the only way to winter bees was to seal hermetically the cover to the hive when I read C. P. Dadant's article on page 198, and it carried me back (mentally) to the winters of 1871 and 1873. At that time, not having cellar room for our bees, we were obliged to winter a part of them on their summer stands. The most of these outsiders were in chaff double-walled hives, covered with a box of thin lumber six inches deep, with a bottom of burlap or similar coarse cloth, and no top. This cloth bottom was tacked securely to the box, and filled with dry oat chaff. The honey-board was removed; two sticks, half an inch square and 12 inches long, were placed across the tops of the frames near the center of the hive, to form a bee-passage over the combs. The box was placed over the bees; and a cap with gable roof, with a 1½-inch hole in each end, covered with wire cloth, to admit air, was placed on the hive. Results were as follows:

On removing the caps on any usually cold winter day, a hoar frost could be found covering the inside of the roof-boards. By passing the hand down carefully through the chaff, a very comfortable warmth could be found next the bees; and if the box was lifted from the hive, the bees would boil up over the top-bars, ready to fly out and die in the snow if the chaff box was not at once replaced. Water in saucers froze hard when put on top of the chaff only five or six inches above the cluster of bees. In *very* cold weather, 10 to 25° below zero, the frost on the inside of roof-boards was very thick. At times a very little frost would gather on the top of the chaff, only to disappear when the weather became milder, and combs and bees came out dry and clean in the spring, with a loss of less than half of one per cent. The chaff was left on these hives until the beginning of May, when, noticing the ground in front of one or two hives covered with chaff, we began moving the boxes, as the bees were eating the cloth and working chaff down among the combs. Night overtook us before the job was finished; and next morning we discovered the bees busy at the task of removing chilled brood from nearly all the hives that were minus chaff boxes, and none of the others. We took the hint, replaced the chaff, and left it until cool nights were the exception and not the rule.

In the winter of which we more particularly speak, 1871, the loss was very heavy in our section. Colonies perished by the hundred, leaving hives heavy with stores, and reeking with dampness and filth, not only on the summer stand, but in the cellar. Our own loss was fully 80 per cent in a special winter repository, from diarrhea. Had our apiaries been chaff-packed throughout, our loss would have been merely nominal.

Now, this may sound like extravagant praise for chaff hives and absorbents. I use neither the one nor the other, and have none to sell. I abandoned the chaff hive with genuine regret, as one takes leave of an old and tried friend. But I will say, that, were I to return to outdoor wintering, my own experience of nearly a quarter of a century in the apiary, to say nothing of that of men like the Dadants and others who have grown gray in the business, teaches me that I could winter safely by using properly constructed hives and an absorbent over each hive, that, while retaining the warmth of the colony, would allow the dampness to escape from the interior of the brood-chamber; and while, as friend Dadant says on page 198, you can bring your bees through a mild winter with a sealed cover, just try the experiment in a hard winter on a large scale, with sealed covers and chaff boxes side and side. J. A. Nash.

Monroe, Iowa, March 21.

SHOULD BEES BE ALLOWED TO MAKE WAX?

EXPERIMENTS IN FRANCE.

De Layens, a prominent French bee-keeper, gives in *L'Apiculteur* a detailed account, occupying ten pages, of experiments with 18 colonies, allowing half of them to build combs, and supplying the other half with combs ready built. Each half of the 18 colonies were, as nearly as possible, of the same strength, with the same amount of brood and honey. M. de Layens says the object was not to find how many pounds of honey were consumed to make one pound of wax. Previous experiments had satisfied him that 6.3 pounds of honey were necessary.

Right here he gives a blow to the long-established method of reasoning on this matter. The orthodox thing has been to say, "If 6 pounds of honey make one of wax, and that 6 pounds of honey will bring 40 cents at wholesale, while the pound of wax will bring only 30 cents, then it is a clear case that it is better to sell the honey and not allow the bees to build wax." But M. de Layens says the question of how many pounds of honey make one of wax is not a question of importance at all. But he says, and says truly, the practical question is, whether the harvest of wax and honey produced by a colony is of more value than the harvest of honey from the same colony furnished with ready-built combs, and thus prevented from secreting wax.

The 9 colonies, furnished only with starters, produced almost exactly the same amount of honey as the other lot, and built 31 combs, thus making a clear gain of 31 combs over the colonies which had no combs to build.

One might readily conclude, that, if it is economy to allow the bees to secrete wax, it is useless, or worse than useless, to give them foundation. Not so, says M. de Layens. The gain in preventing drone comb is so much, in addition to having combs promptly ready for the grand harvest, that it is true economy to have all the frames which the bees are to fill with wax, completely filled with foundation. I suppose his plan would be, to melt up constantly the poorest combs, to be replaced by those newly built.

Looking just alone at his experiments, it seems a pretty clear case that we are astray in not giving our bees a chance to build plenty of comb; but there remains something to be satisfactorily explained away. How does it come, if building comb has some effect upon the bees to make them harvest more (for it must be remembered that they harvest the honey that is used in building the combs), how does it come that a greater yield of extracted than comb can be obtained?

On the whole, I should not feel sorry if obliged to believe that M. de Layens is right in his views, for it would be a very nice thing to believe that we could readily change from one style of frame to another without any pecuniary loss, and that when, for any reason, a brood-comb did not exactly suit us, we could make money by melting it up.

But I can not say that I am willing to swallow his conclusions without making a wry face over them. His conclusions are, that, to obtain at the same time few swarms with a maximum of honey and new wax, a large horizontal hive is necessary, containing at the same time enough combs for the laying of the queen that she may not be hindered, enough combs to store all the honey harvested and enough empty frames to permit the young bees to construct new combs at the time of their own preference for such work. Of course, these conclusions may be all right for extracted honey, but how about comb honey ?

His plan of having the new combs built is in his large hive of twenty frames, the brood-nest being at one end, then empty combs, then combs of honey alternating with the empty frames or frames of foundation.

TWO QUEENS TO ONE COLONY.

An esteemed correspondent across the water asks my opinion as to the new method of management inaugurated by Mr. West in England. It certainly looks as though it might be successful. Yet so many times I have settled upon some new plan, feeling sure that it must work, and have been sadly disappointed to find that, when turned over to the tender mercies of the bees, the plan worked just the wrong way. I am getting to be a good deal of a skeptic. The fact that it has worked well in the hands of one man, or for one year, or in one place, is not conclusive proof that it will always work everywhere. It is, however, well worth a trial, and I have no doubt it will be thoroughly tried this season, at least in Great Britain.

The plan, in brief, is, to have a perforated division-board in the center of a hive, the perforations being queen-excluding, a queen in each half of the hive, and a queen-excluder placed over the brood-chamber and under the supers. Thus the workers are allowed to commingle freely, while each queen is kept on her own side of the house. It is a generally accepted theory, and I believe it is a fact, that strong colonies are the ones that yield the most profit. Indeed, the great effort of every bee-keeper is to get his colonies strong by the time the principal harvest begins. With two queens in a hive it is possible to have a larger force than with one. I have little fear that either queen will be killed. And yet my attempts to throw a double force of workers into one set of supers has not been crowned with the success that I felt sure it deserved. One year I had a number of colonies placed in pairs, practically two hives on one stand. When the harvest began, I shook nearly all the bees of one hive into the other, leaving the latter alone on the stand. I could not make out that I got any thing more from this united colony than I got from other single colonies of the same strength as each of this pair was. I don't know why. It certainly seems they ought to have done better. Possibly another trial would result differently. So I don't feel very sanguine as to Mr. West's plan. One objection to it is, that the chances for swarming are increased. Trial alone will decide as to the merits of the system.

Marengo, Ill., May 5. C. C. MILLER.

[We believe it is a fact, doctor, that can not be disputed, at least if we can rely upon the reports of large and extensive bee-keepers, that more extracted than comb honey can be produced. C. A. Hatch brought this point out quite plainly on page 229, April 1, and the same, we notice, was copied recently in the *British Bee Journal*, with the indorsement of the editors in a footnote. Well, then, your question, "If building comb has some effect upon the bees to make them harvest more, how does it come that a greater yield of comb than extracted can be obtained?" it seems to us would be a poser for M. de Layens. Possibly he made some mistake. We should like to see Layens' experiment tried by different bee-keepers in this country, particularly by John H. Larrabee, of the Michigan Apicultural Experiment Station at Lansing. We hope he will undertake it this summer and give us the results of the same in due season.]

BEE-KEEPING AFTER THE OLD FASHION IN NORTH GERMANY.

THE EDITOR OF THE "ILLUSTRIERTE BIENEN-ZEITUNG" RELATES IN AN INTERESTING MANNER HOW BEE-KEEPING IS CARRIED ON WITHOUT MOVABLE FRAMES; HOW HIVES ARE QUEENED AND UNQUEENED, ETC.

It may interest many of the readers of GLEANINGS to know how the bee-keepers of North Germany, especially in the province of Hannover and the dukedom of Brunswick, manage their bees in the dome-shaped hives I described in my last article. The readers will be astonished to know by what simple methods they keep their bees in the most profitable way.

Well, they do not know any thing about the natural history, anatomy, and physiology of bees, nor what is written about theory in bee-books. All they know of bees and their management is the result of the experience of their forefathers, handed down from century to century. After they have selected their colonies in the fall, and placed them in their house-apiary, that has an open front side, they shelter the entrances with little boards so that the sunbeams and birds may not disturb the bees; but this is done in such a way that the bees may go out and in. During the winter the bee-keepers do absolutely nothing with their bees till the time of a cleansing flight at the end of February or in the month of March. Then they are anxious to know the exact condition of every colony. This is accomplished by turning over the hive and getting a glimpse between the combs, finding how strong the colony is, etc. After cleaning the bottom-board they prepare their colonies for the first moving to another place, because their bees in their home have little or nothing to live upon till July. Here in their home it would take 2½ barrels of honey—that is to say, 700 pounds—for 50 colonies, to get as many swarms as they wish for. To save this honey they move their stocks. Covering the opening of each hive with a cloth that they tack to the hive, they load the hives on their wagons and move their bees 20 or more miles to a region where they find good bee-pasture in the spring.

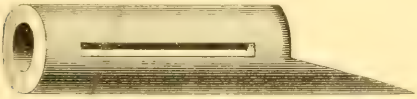
One who has 50 colonies will take with him 300 lbs. of honey and 100 empty straw hives on a second wagon. In an orchard our bee-keeper has hired a place for such a bee-house as he has at home, and therein he places his colonies. After this he goes home. In April and May, on some fine days he visits his bees to look them over with the utmost care for three or four days. As he has mostly colonies with young queens of the previous year, he has seldom to unite queenless colonies with others. Weak colonies, if he has such, he provides with bees from his best colonies. This is accomplished in the following manner: When the bees are flying best, he sets a weak colony in the place of a stronger one, but never a very weak one in place of a very strong one, because the queen of the weaker one would be killed.

Another way to build up a very weak colony is this: Toward evening he puts a flat feeding-trough, with honey, under a strong colony. As soon as the bees cover the food, upon which he has put some shavings or straw, he takes the trough, with all the bees, and sets it under the weak colony. This he repeats for three or four evenings. In this manner he goes on in April and May till he has equalized his colonies. If the honey-flow in these two months is very good, then he does not feed; but if not, he will feed very liberally for three or four days. By equalizing and feeding the colonies at the right time he shortens the swarming season. All his first swarms will issue, according to the weather, within eight, nine, or ten days, and those colonies that do not swarm at this time he will swarm artificially by driving. Most of the natural swarms he takes in swarm-catchers to prevent missing the swarms and killing the queens.

Every one of these swarms the bee-keeper puts into a thoroughly cleansed hive. He does not like very strong swarms, because they are inclined to build too much drone comb. Therefore, if a prime or after swarm is not too weak he lets it build its combs as well as it may. But as soon as such a swarm has made a good start, the bee-keeper will build up this colony with an after-swarm. This he accomplishes in this way: He selects an after-swarm, and takes from it every queen. After sunset he puts the queenless bees into an earth-pit, and sprinkles them with salt water, and places over the pit the colony he wishes to build up. Early next morning the bees have united friendly, and the colony is placed on its old stand. Such a swarm with its young bees will work very satisfactorily. The after-swarms are the pets of the bee-keeper.

If a parent colony has cast several swarms, and has not as many bees as it should have, the bee-keeper will return a good swarm; then the stronger these stocks are, the better.

To prevent queenlessness of the parent colony that has swarmed, the bee-keeper will give a young queen in a queen-cage like this. The opening of it is closed with fresh wax. If the colony has a queen, then the bees will not gnaw open the cage, otherwise they will.



In order to provide himself with young queens, the bee-keeper will hunt out from the after-swarms as many queens as he can get. He puts all into such a cage, closes the opening with a *wooden* plug, and then he puts from three to six queens in an after-swarm that has only these caged queens. Such a one will feed all the queens for some time, and the bee-keeper will use them as they are needed. Colonies with a laying worker he cures without fail with a little after-swarm.

From 50 colonies, spring count, the bee-keeper will get 100 swarms, so that he has at least 150 colonies. The most care he takes is to get such combs built as he needs; therefore he will, three days after hiving the swarm, and every third day after, turn over the hives in which the bees build combs. Every comb runs straight to the entrance. All drone comb is cut out till three-fourths of the combs are finished, then the bees are allowed to build a little of it. Too much drone comb will induce untimely swarming, and produce too many consumers of the honey. As soon as a swarm issues, all drone comb with brood in it is cut out.

The bee-keeper has to take the utmost care to prevent the swarming of the first swarms. Cutting out drone comb will not save him that trouble. But what shall be done now to prevent the loss of honey by swarming? As soon as the colony gives the signal that it will surely swarm, then the bee-keeper drives, by drumming, the bees from the combs, and also from a young after-swarm that has *unfinished* combs. Now he hives the first swarm on the combs of the after-swarm, and this on the combs of the first swarm. The young queen destroys all queen-cells, and the first swarm resumes comb-building, and so swarming is prevented.

As, with the beginning of July, buckwheat comes in bloom at the home of our bee-keeper, he prepares at the end of June all colonies for moving home. Here he has a bee-shed that is so situated that the bees placed in it may have the buckwheat fields on one side, and the large plains of the heather on the other. If the weather is favorable, the bees will work with great vigor till the middle of September, when his 150 colonies will have gathered so much honey that 8 of them give 300 lbs. of honey. However, in very bad years he will have only a wax crop, and among his 150 colonies as many as will winter well without much feeding in the fall or spring. In good years he will put only 50 colonies into winter quarters; but in a bad year as many as he can, recognizing that, in a bad season, a better one may follow.

During the whole season the bee-keeper has watched his colonies. He is as familiar with every one as a shepherd with every sheep of his flock, and he can tell you a long story of every colony without any note-book. According to this he now selects all the colonies he intends to put into winter quarters, and the others he puts on the sulphur-pits before he moves to his home yard.

Selecting his colonies for the next season, he goes on with the utmost care. At first he selects every after-swarm that has young combs, and, of course, a young queen with the necessary winter stores. The whole weight of a colony must be from 26 to 36 or 40 lbs.; 10 lbs. is the weight of a hive net. Bees, bee-bread, and combs weigh perhaps 5 to 6 lbs. The best colonies are those from 30 to 36 lbs. If he can not find 50 colonies among his after-swarms, then he selects some colonies that have swarmed early, with a young queen, and combs from the year before. From the utmost necessity he selects first swarms with queens from the year before.

Hives with short combs, perhaps as long as a hand, or shorter, he preserves. After he has killed the bees he closes the entrance and the opening of the hive with a cloth, and then he hangs up the hives in a lofty room. At swarming time he puts swarms in them. He also preserves some hives with good combs, and, say, 15 to 20 lbs. of honey. If he has wintered colonies with 26 or less pounds of honey, then he will, after the first cleansing flight in February, drive the bees off by drumming, and put them in their reserved hives. All the honey in the other hives goes into three grades. The best white sealed honey-combs he cuts into pieces, and sells them at from 25 to 37 cents. Then he selects the next best combs of sealed honey and pollen. He puts these combs with honey in pans, and pounds them all to "pap." This is his "futter-honig," or honey for feeding. All the other honey he strains. The honey for feeding bees he will sell at from 24 to 26 cents, and the other 16 or 20 cents.

I have now given the reader only an outline of the management of bees by the bee-keeper of North Germany, but I think it will be sufficient to see that these men very well know what they are doing. At the end of my article let me say that I am a descendant of the bee-keepers of North Germany; that I have kept bees in the way of my forefathers before I heard of the movable-comb hive. If the kind reader will take this into consideration, then I hope he will understand that I prefer a hive that has all the good qualities of the old straw skep in combination with the best qualities of the movable-comb hive. C. J. H. GRAVENHORST.

Wilsnack, Germany.

[Most of the readers of the bee-journals of this country have been educated in the use of the movable-frame hive; and the idea that a colony in straw skeps can be divided, doubled up, queened and unqueened, as you have so well explained, seems well nigh an impossibility if not an absurdity. Even if we do not propose for a moment to go back to straw skeps, and manage as your people do in North Germany, it is exceedingly interesting to read how they manage to perform the necessary alterations in the internal economy of the straw skep. Our older readers will remember how well father Quinby managed without movable combs, and how the mere reading of his first book on bees gives one a fever to do as he did.

There is also a practical side to us in this whole matter; and it is the same that we referred to in our footnote to the former article; and that is, that, even though we do have movable frames, it does not hinder us in the least from diagnosing colonies or changing their internal anatomy without handling the frames whenever we can do so profitably. Let us by all means have movable frames; but let us not abuse their use. The beginner and enthusiast can afford to handle frames over and over again, just for the fun of it and for the knowledge thereby gained; but the practical honey-producer can not afford to do so.

Now, because we have so expressed ourselves, don't jump to the conclusion that we are going back to old box hives. Far be it. We would cull out the useful in all things.]

LADIES' CONVERSAZIONE.

A REPORT FROM MRS. AXTELL.

BLASTED HOPES; ARTIFICIAL HEAT, ETC.

Mr. Root:—We are nearly fit subjects to fill the column of Blasted Hopes, so far as the production of honey is concerned this season. But we are truly thankful that so many of our little pets are alive, and hopeful that we can save enough to stock up again, as probably we shall not live to see another twelve months that will be so disastrous to bee culture. One year ago this spring our bees came out of winter quarters in good condition in both apiaries, except being short of stores. We fed granulated-sugar syrup, what they needed, to bring them through until they could gather a living themselves, which was the second week in June. There seemed to be scarcely any honey in white clover, which blossomed very scantily; but on all hickory-trees was honey-dew, some trees fairly dripping with it.

The bees at Timber Apiary increased very rapidly, and nearly all colonies became strong enough to swarm, but they did not; but the bees in the home apiary began to dwindle about the time we sprayed our apple-trees, which was after all the flowers had fallen, and they still dwindled all through May and June. There was plenty of brood in the hives all the time; but as soon as the young bees could fly they would disappear, leaving only about enough to take care of the brood. During July the best colonies built up and became fair in point of strength, and gathered honey-dew enough to winter on. This was apparently all the honey the bees gathered last year, though probably they did gather some from catnip and other fall flowers, for immediate use. Timber Apiary gave about 500 lbs. of surplus in sections, and we had perhaps 50 lbs. at the home apiary. The bees at Timber Apiary, being so populous, used up much of their honey, and about half of them had to be fed sugar syrup for winter. When we found they were not going to fill up for winter we sent to Chicago for sugar, which, through a mistake, was sent to Rossville, in the eastern part of the State. By the time we traced it up and had more sugar sent us it was very late to feed.

THE RESULT.

When we took the bees out of the cellar on the first of April, about a third of them were dead. Many more were so near dead that they were united; but they were so diseased that the united colony died also, in a few days. Those wintered at Timber Apiary fared no better. By the first of April more than a third were dead, and many so weak that they soon died. We tried putting a few of the weak colonies into nucleus boxes and placing them in a warm room at night, and setting them out of doors in the daytime when warm enough to fly; but they, too, all died. We put some of them on sugar-fed combs, and fed warm thin sugar syrup, but it did no good. Even the colonies whose stores were wholly sugar syrup fared but little better than those with honey-dew. For some reason they would not feed up their brood. It looked dry, and soon died. Only a few scattering cells were sealed over. This was the case with all colonies until about the last week in April, when the remaining colonies began to get solid patches of brood. This was about the time they took flour freely. Before that they would not notice the flour although we set it out for them. The combs contained plenty of eggs all through March and April, but the bees would not feed the larvæ, except a cell here and there.

May 11th finds all our bees brought home from the out-apiary. Last fall we had 225 colonies; now we have 90 with bees in. Some are but mere handfuls; 50, I think, will build up by the middle of June; the rest will barely save their queens, and some will yet die. But they all have the most brood I ever saw in hives with so few bees, and this brood is now beginning to hatch out. We had two queens sent us by Mr. Doolittle the last of July, which we introduced on hatching brood, and built up into good colonies by feeding granulated-sugar syrup. By the way, their progeny are beauties—yellow, clear to the tips of their bodies. Those colonies were fed sufficient to build them up, and for winter stores, in August and September; but they were given a very little in October, to make sure they had plenty. They wintered well and came out with plenty of bees, but no brood except eggs.

ARTIFICIAL HEAT.

Into those two Doolittle colonies, and into about fifty others of the weakest taken from the cellar, we put the bees from two to four combs, and set them to one side of the hive with two division-boards between the bees and the side of the hive, and on the other side we put a division-board and set in a jug or jar of *hot* water, and filled up the hive with dry chaff. Every day for nearly a month we changed the water, filling the jars with boiling water each time. I think it prolonged the lives of the mature bees, but I could not see that it caused the brood to hatch any better than that in the hives that had no hot water. In the one and two gallon jugs, and in the two and three gallon jars, the water, after 24 hours, would still be as warm as fresh milk. The jugs and jars retained their heat better than large stones, and they did not endanger the chaff by heat. Neither could we see that the water was an injury, as all the brood they had was stored in the first or second comb nearest the heat, and the bees would cluster the most on the comb nearest the heat.

The two Doolittle colonies that were fed up early in the summer and fall, and had plenty of bees when set out of the cellar, had plenty of eggs all the time, and did not feed up their larvæ, nor cap over any more brood than the other colonies, and dwindled just as much as the other. In fact, there were a few colonies that wintered on honey-dew that did not spring dwindle as much as they did. To keep them from dying we have had to help them with brood from other colonies, as we wished to save their queens.

This we have observed: The blacker the bee, the better they have wintered. Our hybrids wintered better than our pure Italians, and our neighbors' blacks are now in better condition than even our hybrids that have been given so much care.

The jugs of hot water were corked, and the jars were covered, to prevent steam from getting out into the hives. We did not expect to put the water in so long when we began. We thought if we could only keep up the warmth for ten days or so after first taking them out of the cellar, so that they could get capped brood, that the weather by that time would be warm; but we have been having an unusually cold, backward, and rainy spring all through March and April, so we kept up the hot water until the weather got warmer, and until we concluded they would be just as well off to put the combs in the center of the hive, and put dry chaff around them and leave them alone, closing the entrances very small, putting them on from one to three and four combs, the size of our combs being 11½ x 19½. Now, as we have them on so few combs, and there are so few old bees, the next thing is to keep them from starving, as we want them to have fresh sugar syrup. They won't take syrup from our feeders to amount to much; but they go for the honey in the combs, so we have been pouring very rich syrup into the combs, in one side only, setting the combs in a barrel, with the mouth of it pointing toward the sun. We first lay a strong comb in the barrel to catch the drip, if there is any, and then set the combs on top of this. Drone combs are the easiest to fill. The bees take the syrup out of these combs nicely on warm days; but there are so many cool and cloudy days that we have to feed some in their hives or they would starve. As we have not had to feed much in the hives, we have made the syrup very rich, and poured it down between the combs and between the combs and division-board, but not a great deal on the cluster of bees, as we feared it might injure their wings in getting it cleaned off. The hives must be level or it would leak out. We never before saw bees refuse to take syrup from the feeders, or work in them so lazily. It is the condition of the bees, I think.

One day about the last of March the bees brought in natural pollen quite freely, and then for three weeks they brought none in. We mixed graham and fine flour with corn meal, and fed them. They took it quite freely after they got started.

Now, I should like to inquire why the two sugar-fed colonies that were fed early in the season dwindled this spring so badly. Why did not the other colonies that were fed up late, but sealed up their stores, winter better, as we have in past years fed just as late, and yet they wintered well? Was it not because the colonies on honey-dew became diseased, and infected the rest? If that was the reason, then why did our neighbors' black bees, that were wintered wholly on honey-dew, winter better than ours?

We had several days of cold high winds; and as our bees have dwindled down so much we thought to shut them in the hives two nights and one day; but they were so uneasy that a few colonies of the bees crowded out through holes that they could not get back in again, and we were busy and did not notice all of them. In the morning, after a cold rain, I found one hive where they had crowded out and remained all night. I picked them up and put them in a big cup and brought them to the fire. They soon became lively, and I carried them back to the hive, and they went in. In another hive they crowded up through the straw, and quite a lot lay stupid in the top of the hive. I took those in and warmed them up, and they became lively, and I returned them to their hive; so I conclude that, if bees are fastened in the hives, there ought not to be any chance for them to crowd out of or up into the tops of the hives; for they will crowd harder to get out than they will to get in. I believe I prefer to close the entrance, leaving only room enough for a few bees to get out easily, and then they will not be so uneasy. MRS. L. C. AXTELL.

Roseville, Ill., May 11, 1892.

[Well, Mrs. A., you have been going through with some experience with bees. The results of your experiments with artificial heat in warming up colonies, so far as we remember, have been like all the rest—a failure—at least, productive of no very great good to the bees. The results of your wintering seem to show that your bees were bent upon spring dwindling, whether they had sugar stores or honey-dew. After all, we question very much whether honey-dew has not been condemned a great deal more severely than it deserves, as a winter food.]

PROPOLIS.

AND HOW TO REMOVE IT FROM SEPARATORS, HIVES, ETC., WITH LITTLE LABOR.

When I cleaned the T tins with concentrated lye, I felt pretty sure that hives, supers, separators, etc., could be cleaned in the same way, but was so busy I could not take time just then to experiment, so concluded to say nothing about it till I could find time to test the matter. This morning, May 5, being the first opportunity I have had, I concluded to experiment a little.

I put on my wash-boiler with water and lye, then went to the shop and selected the most badly propolized supers and separators that I could find as fit subjects on which to experiment. I dropped a few separators into the boiler while the water was yet cold, to see what effect it would have on them. I couldn't see that it affected them in the least until the water almost reached the boiling-point, when the propolis disappeared.

What I was most afraid of, was, that the separators while wet would cling so closely together that the lye would not reach every part, and that they would not be perfectly clean. I was glad to find these few did not bother at all, but came out perfectly clean. I stirred them with the poker while boiling, although I don't know that it was necessary, as I tried another lot without stirring, and they came out just as clean. I next tied up a bundle of 59 separators, that being the number I had handy. Of course, they were tied loosely. I dropped them in, having a strong cord tied around the middle of the bundle to lift them out by. I left them boil two or three minutes, and took them out; 32 of them were perfectly clean. The rest, the center of the bundle, still had some propolis left on, and were treated to a second dose.

Taking a very large quantity of the separators at one time, there might be more trouble than I think, about getting them clean, but I don't believe there would be if the water were kept hot enough, and enough of the lye used. I don't think any harm would come from having it unnecessarily strong.

I next tried dipping the T supers. My boiler was large enough to clean only half a super at a time, so I had to dip in one half, reverse it, and dip the other half. Had I been able to dip one all at once, I think I could have cleaned one a minute. And they are beautifully cleaned. I don't know of any other way they could be cleaned so nicely—quite as clean, I think, as when new. We scraped all our supers before the lye was thought of; and while they are much improved by the scraping, they are not nearly as nice as when cleaned with lye, and the scraping is harder work.

I did not have any thing large enough to dip a hive into, but of course a hive would clean as readily as a super. With convenient apparatus to work with, a large number of such articles as separators could be cleaned at a time with no very great amount of labor. It is such a comfort to have every thing clean! Wood separators are so cheap that we have always thought it did not pay to clean them. I rather think we shall conclude that it does pay, after this, providing we can get them satisfactorily dried in good shape. Emma Wilson.

Marengo, Ill., May 5.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

LETTER FROM J. H. TOWNLEY, OF CHAFF-PACKING FAME.

We have no use for bee-keepers' supplies here; but thanks, all the same, for illustrated catalogue. The beautifully neat and tasty picture of your grapevine apiary and its surroundings on the front cover reminds one of his old occupation, and almost makes him wish that he were again engaged in his nearly lifelong favorite pursuit. The picture of your factory, and the piles of apiarian supplies around the depot and along the railroad track, awaiting shipment, on the last cover, shows that you have "spread out" quite extensively since I was in Medina something like fifteen years ago.

I brought one colony of bees with me when I came here in 1882. The first year, they stored enough honey to winter them; the next season I fed them honey all summer, and let them starve in October. It was useless to keep them longer. They wintered well in a large goods box, packed *below*, above, and on all sides with from 4 to 12 inches of chaff, without a fly from October until April. What honey they had was mostly goldenrod and the excrements of plant-lice.

Bees are successfully kept in the south part of the State and along the Missouri River. I think they could be kept here in more favored localities along streams, where, in its season, there are scores of acres covered with a sea of goldenrod for six or seven weeks.

We can get white-clover honey, extracted, laid down here, by the barrel, for 7 and 8 cents per lb. It retails now at the stores, put up in 1 and 2 lb. tin cans, at 20 and 35 cents per can. Comb honey, in 1-lb. sections, some of it quite dark, is retailing at 30 cents. J. H. Townley.

Ashton, S. D., May 7.

[Some of our older readers will remember this as the Townley who first suggested to us, years ago, the use of chaff for packing double-walled hives. In the interim we had nearly lost track of him.]

A 2½-INCH RAINFALL IN THE MONTH OF MAY IN VENTURA CO., CAL.

There is a general feeling among bee-keepers in this region that they will get no surplus honey this year. However, I expect a small crop, and especially as we have just had the very extraordinary experince of a 2½-inch fall of rain in May. R. Wilkin.

Newhall, Cal., May 4.

[We are glad to hear of the rain, friend W., and shall watch anxiously for its effect on the honey crop. And, by the way, do you not believe that this rainfall was produced by irrigation? Near Tropico I saw a tract of land that had been covered with fruit, and at one time it was worth $1000 an acre. The ground kept getting wetter and wetter, however, until, when I saw it, it was but little better than a swamp. All the fruit had been killed by the wetness, and the tract was abandoned. This, I was informed, was probably the result of excessive irrigation year after year. The water had settled down in this low place; and as the subsoil was probably impervious, it became wetter and wetter each successive year. In different places I saw evidences of what might be expected by continued irrigation; and, if I am correct, such a state of affairs favors rainfalls where they have not been previously known.] A. I. R.

SOMETHING FROM "TOMMY IRONDALE."

Mr. Root:—We were glad to hear of your safe return home after your long journey, and we hope that you health is much improved by the trip. Tell Mrs. Root that the book she sent the children, "First Steps for Little Feet," was much enjoyed by them. After your report in Gleanings, that the Eaton Falls picture was a failure, we wondered if Pole Canyon Falls had impressed itself properly on the Kodak. We shall have no honey to speak of in Southern California this year, as the rainfall is less than for seven years; 13½ inches have fallen here so far this winter. It is reported that Mr. Mercer has only 500 colonies alive now out of a total last summer of 1100. There has been great loss from starvation the past winter all through the honey-belt of this country.

T. F. and Mrs. Arundell.

Fillmore, Cal., May 8.

[We are very sorry indeed, friends, to hear of the bad prospects for honey. I think you California folks will have to get down to feeding in winter, under such circumstances, and also to giving your bees a little more attention during the winter and spring months. Pole Canyon Falls will appear presently.] A. I. R.

QUEEN-EXCLUDERS FOR EXTRACTING; PROPOLIS DOES NOT INTERFERE.

On page 333, May 1st, Wm. Seeman tells how his bees filled up the holes in his excluders, and would not work above them in extracting supers. As excluders between brood-chamber and top story is one of the most satisfactory arrangements I have ever used, I write this to testify to their worth. Propolis is one thing that bees gather here nearly all the year. They frequently cover every crack, joint, quilt, and fill rabbets full, but have never yet filled holes in excluder. Often, frames are so stuck that a lever has to be used to start them.

In 1890 I got 30 excluders, to try them. Next year I had 40 in the home yard, and 35 in an out-apiary for another party. I have always left them on all the year. Last year I got nearly 200 lbs. from several colonies that the excluders had been on a year. This year I have taken nearly 100 pounds from several that the excluders have been on two years; some of them have a part of the holes filled with wax, but not enough to interfere any. It is a nice thing to know that the top is full of honey, not half full of brood. I am inclined to think excluders discourage swarming; but why, I do not know.

Our orange bloom was killed by frost, and early bloom greatly injured; yet several colonies have filled a set of 10 combs, and built and filled a set of 10 frames of comb - no foundation —besides. Our best flow is just commencing. Some seem to prefer the black bees; but the "golden" is good enough for me, and so gentle.

Port Orange, Fla., May 11. **J. B. Case.**

VINDICTIVE PUNICS.

Last winter I brought my Punic stock from Illinois to this place, where I am now located. They came through all right; and I must say, that, just as I was getting ready to prevent the issue of swarming, behold, when I came to look at them they had evidently taken a few days the start of me, and my $5.00 Punic that I purchased of Pratt was to be seen no more. She was an extra fine queen, and left behind at least 150 queen-cells. As one would emerge from her cell she would run like mad; and, allow me to say, all this took place the latter part of March; and last, but not least, they are the most vindictive of any bees I ever handled.

Bakersfield, Cal., April 19. **F. D. Lowe.**

[We do not quite understand. Do you mean the progeny of the Punic queen you lost, or that from the queens you raised from her were the most vindictive of any you ever handled?]

A JOHNNY-CAKE BEE-FEEDER.

Bees in these parts are wintering finely, on the average. The outlook for a good year coming was never better. A new bee-feeder has come to the front, or *is* coming. A friend of mine having 150 colonies of bees has a feeder that is new to me. Perhaps you have seen one; if it is *not* new, he doesn't want to waste money in getting a patent. He bakes johnny-cakes, 2 inches thick; splits them in the middle; soaks with sugar syrup; puts in front of hives, and the bees carry off syrup, johnny-cake, and all, into their hives. I should like your opinion of this feeder. It is possible he has the kind of bees Dr. Miller or some one else saw carrying off the raisins. **Rev. James Andrews.**

Red House, N. Y., March 7.

[We must certainly give your friend credit for originality; and whether or not the idea is patentable need not be discussed. We have no doubt but that it will work perfectly.]

UPWARD VENTILATION IN THE CELLAR.

There has been much said in Gleanings in regard to ventilating hives, by the best bee-men, and they do not seem to agree in all respects; and now I wish to tell what I saw this spring. Quite early this spring we were compelled to take our bees out of the cellar. It was warm and they were uneasy, and some were dying, and there was no good way to ventilate the cellar; the result is, we have 7 colonies left, out of 26 last fall. I went to friend A. J. Tibbits for a little advice, and he said if I had come to him in the fall he could have helped me. He then led me to his cellar, and truly I never saw a finer sight—nearly 200 colonies with covers all off, with a piece of loose sacking spread on the hive; over this a strip of lath, then a hive on that, and only the loose cloth on the top hives, and the bees all quiet. But there is no doubt that his cellars are as good as can be found. They are built in a dry sandbank, with 20 or more feet fall below the cellar bottom, and are lined with plank. They are dry and frost-proof. On the whole, brother T. is a successful bee-keeper, and a good Christian man; and now will Gleanings tell us why so many bee-keepers speak the language of Canaan?

Weston, Wis., April 29. **J. C. Staysa.**

THE EXPERIENCE OF THE MAN WHO TRIES TO MAKE HIS OWN HIVES.

You remember I bought a lot of frames, sections, and section-holders of you some time ago. I made a big mistake by not buying the bodies and supers at the same time; and if you and the good Lord will overlook that little miscalculation I will not do so again. I have made ten bodies, and am tired and ashamed of the job; so I want an estimate on 10 bodies, 20 supers, and 150 wood separators; and hereafter I will order all at once. I have 15 colonies, all in good condition. **D. H. Webb.**

Artemus, Ky., April 20.

"ONE OR TWO WARM DAYS, ETC."

In Gleanings, page 250, you have me standing lop-sided—need a little bracing up. Would you advise wearing corsets? Dr. Miller's Stray Straws must be for the land of blizzards. He says, "Don't be fooled by one or two warm days into bringing your bees out of the cellar too soon," etc. *Here* they are swarming every day, and have been for two weeks.

Wm. Stevenson.

Pasadena, Cal., April, 1892.

[No, no, dear friend—don't wear corsets. You must not lay the blame on the Kodak, for its mission is only to take things as it finds them. May be you were a little tired after your long tramp. We hope Dr. Miller will take notice that everybody who reads Gleanings does not live in a land of blizzards.] **A. I. R.**

DRY IN FLORIDA.

I am putting on section boxes, but I don't look for much honey this season. It has been too dry. The bloom could not open; no rain since January till this morning. I am in a good locality for honey—100 to 150 lbs. to the hive, the most of it the whitest comb honey I ever saw. **Joseph Baker.**

Sopchoppy, Fla., May 11.

[Send a little of your drouth up North, if you have any to spare. We've got too much wet.]

BAD WEATHER FOR BEES IN OREGON.

There have been but a few days for the last six weeks when bees worked to amount to any thing. It has rained and rained, and has been very cold. There was ice last night ¼ inch thick, but it has cleared off to-day, and the bees are working finely. I have 30 stands. I lost only two last winter. They had old queens, and died. I don't think we shall have much of a honey crop here this season.

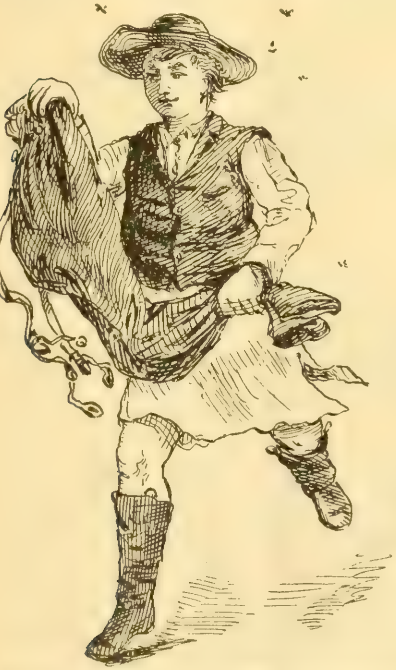
Wilhoit, Ore., May 9. **Henry Russell.**

NOTES OF TRAVEL

FROM A. I. ROOT.

At San Jacinto I was asked to give a talk to bee-keepers and others. We had a pretty fair room full, and my audience seemed so much interested that I (after being urged to go on) talked a full *hour and a quarter*. This is the longest talk I think I ever made; but some of them had come over the mountains, twenty miles or more, and it seemed too bad to stop while any of them had any more questions to ask. Another request came for me to speak at Winchester the next evening, and we had a very pleasant visit there. A long buggy-ride through the mountains by way of Temecula, Fall Brook, and Oceanside, had been planned; but we were obliged to give it up on account of the tremendous rains. As the rain was greatly needed, however, we were glad to give way to the public good. While at Winchester our good friend R. S. Thomas gave me the following:

Quite a young boy in the neighborhood took a shine to bee culture. He read every thing he could lay hold of on the subject; watched bee-men, listened to their talk until he was ready to put his knowledge to some practical use. His father, however, objected to purchasing a colony, saying they would find plenty of stray swarms at the proper season, and so our friend watched and waited. At length a swarm came one day when he was at work in the fields, quite a way from home. He threw sticks and dirt among them, as he had read about, in order to make them alight, and finally scooped water with his hat, from a puddle, threw it among them, and was at length rewarded by seeing them alight and cluster on a bush. What should he hive them in? If he went somewhere for a box he feared they would start off again before he returned. It was hot weather, so he took off his pants, tied up the legs, and hived the bees in the pants. They evidently considered this a very fair hive, for they stayed in it while he trudged all the way home with them. His good mother saw him coming, and helped him hive them in good shape. By the way, boys, is there any truer or kinder friend to a boy of thirteen than his mother? After the bees were hived, then the mother looked after the boy. The weather was hot and the road dusty, and poor Willie's bare legs were covered with a mixture of sweat, dust, and occasionally a bee-sting. His enthusiasm, however, was enough to help him hold on to his prize, and now he has a rousing colony of bees in a movable-comb hive, and bids fair to be, in due time, one of the shining lights. His name is Willie Guthridge, and our engraver has tried his hand at a rough sketch of him, as he brought home his first swarm.



THE BOY THAT HIVED THE BEES AND CARRIED THEM HOME IN HIS PANTS.

During the past season the honey-crop of San Jacinto Valley has been small, and the quality not up to the usual standard; but, notwithstanding, one of the firm of the Oceanside Milling Co. came out and bought nearly the whole crop, paying $5.30 per case (two 60-lb. cans) right at the depot. Of course, this is rather low—not quite 5 cents per lb.; but when the bee-keeper has no freight to pay, no risk of damage or leakage, and no rebate to be made for poor quality, etc., he can afford to sell low.

Perhaps I should say something more about the real-estate craze in the West, and may be I haven't given *both* sides fairly, so I think I will give something on the other side. I went into the postoffice at East Riverside to mail some photographs. The postmaster looked at me sharply, and then said, with a comical look on his face:

"Well, my good friend, why do you mail letters to yourself in Ohio when you are here in California?"

It transpired we had met, three years before, on the cars; and I presume, although I do not remember now, that I exhorted him toward God's kingdom and his righteousness. Said he:

"Mr. Root, when we had that talk that night, I *thought* I was a rich man; but in reality I was not worth a copper. I was even then 'dead broke;' but I didn't know it. I will tell you what ruins so many here in the West. We can't stand prosperity. At first I made a very successful speculation. Invested a few hundreds, and it soon turned into thousands. Now, had I been contented to purchase just what I had money to pay for, and no more, I should have been a little poorer, but still have been comfortably situated. What I did do was this; I made large purchases of real estate, paying only enough on each purchase to hold the property. When the depression came, instead of being poorer, *all* my money went like smoke. I did my best, however, to make an honorable failure. I went to each and every one who held the property I had made payments on, and told them just how I stood; and although they had lost too, they all gave me up my notes, so that although I lost all, I came down *owing no man*. One of them, and a close shrewd man too, felt so sorry for me he gave me a hundred dollars, besides giving up my notes; and on this I have started again. It is a little hard for a man of 60 to start again on nothing; but with a clear conscience, and a faith in *God*, *truth*, and *right*, it isn't so very bad after all. If you possibly *can*, come to our Sunday-school over in the schoolhouse right over there, next Sunday afternoon, and see if we are not laying up treasure that does not pass away with the change in real estate."

HIGH-PRESSURE GARDENING.

BY A. I. ROOT.

HOW TO SUPPORT A FAMILY ON ONE-FOURTH ACRE OF GROUND.

I presume likely a great many of the friends will think that I have started out in a very big undertaking this time. Well, perhaps I have; but may be you will think differently after you have gone over the ground with me. You see, if there is only one-fourth acre we can go over it quite often, and not get very tired either. And, by the way, I shall expect the proprietor of this one-fourth acre to see every foot of it, not only *once a day*, but, if practicable, *several times* a day. If he loves plants and sunshine, and the great Giver of all these things as I do, I think he will enjoy looking over this place of beauty, not only the very first thing in the morning when he opens his eyes, but the last thing at night before he goes to bed. In fact, I rather suspect he will be found there at work sometimes when everybody else has *gone* to bed. Well, let us get at it. The first thing will be

LOCATION.

May be you will think I am particular about the location. Most books on gardening direct that you select good soil. Now, I shall say that soil is one of the *last* things to be considered. Of course, we want and expect the very best soil that the world knows any thing about; but the greatest part of it is to be "made to order." I think I should put the first essential, *sunshine.* You want your quarter of an acre where it can get the sun the first thing in the morning, and continue to receive its direct rays all day long until the last thing at night. There should be no buildings nor trees, nor rocks nor hills, nor any thing else to cut off God's sunlight. Almost every thing else you can furnish or get a substitute for. But there has been very little progress made as yet in artificial sunshine. The electric lights may, it is true, give the light, but we want light and heat combined; and I believe the natural sunlight is the cheapest and best. Therefore, my friend, if you own a quarter of an acre of *sunshine* I think you ought to be happy, even if you have not much else. If the soil is also good, it will save us considerable money. But there are other things that need to be considered. I have already said, or intimated, that this quarter-acre should be your own property. Of course, you may rent it for a term of years, and under some circumstances perhaps this would be the best way. But I would try very hard to buy it right out, some way or other. After you consider sunshine, I think I would put nearness to market next. You ought to be inside of the corporation of some town or city; and if the family you wish to support from your quarter-acre is a pretty good-sized one, you ought to have a pretty good-sized town, say 5000 people for a family of five children; 1000 for one child, or 10,000 for ten children. And, by the way, there should certainly be *some* children. I do not see how a man can succeed, in the best sense of the word, in any thing, without a family of children. One reason why I love this matter of intensive agriculture is, that it furnishes so much *work* for children, and work that children as a rule enjoy. It may be a little inconvenient to find a place inside of a city corporation where there are no trees nor buildings to cut off the sunshine. But come as near to it as you can. Either have as few buildings and as few trees as possible, or else get a little outside of the corporation. Now, besides being near the town or city, you want to be on the *north side* of a street running east and west; and you want your premises to come clear up to the street. Streets running in other directions will answer, and a location on the south side instead of the north will also do in a pinch; but it is not nearly as good, as you will presently see. We want to be in town, to save carrying stuff so far to market. We want to be close to the street because we expect to sell a great amount of stuff to the passersby; for this fourth-acre is to be so handsome and attractive that every one will stop involuntarily as he goes by. Now, this is not theory, by any means. I enjoy seeing people stop as they pass by our fourth-acre (that is right before me as I write), every day of my life. Farmers in coming to town and going home usually bring their wives too, and the women always stop and look, turning their heads as the buggy passes on, fixing their gaze, seemingly oblivious to every thing else. Another thing that has taken attention for three or four days back is the fact that a neat, newly planed board, about 10x18 inches, stands in a bed of Jersey Wakefield cabbage-plants, with an inscription on it something like this: "25 of these nice plants for only 10 cents." You see, the good wife not only sees the plants, but she gets sight of the little board, and, catching her husband by the arm, says, "O John! 25 of those beautiful early cabbage-plants are only 10 cents. See what it says on that board. Surely we can afford 10 cents. Let us stop and get some." Not far from the sign is a man engaged at work among the plants. Near him are some stout paper bags, and a watering-pot full of water. He gives the cabbage-plants a sprinkling, pulls up 25 with great bushy roots, taking some of the rich black soil along with them, squeezes the roots all together, and pushes the whole 25 down to the bottom of one of the paper bags, hands it over to the people who are passing by, and receives his dime. I mention this part a little ahead of my story, to show you how important it is that you locate on a well-traveled public road. It is not absolutely *necessary* that the fourth-acre should have very much front. In fact, it may be a long narrow strip, only one end of which reaches out to the road. But the broader a front you have, the more room you will have for display; and in this business we are going into, there is no sign that can be produced by all the combined arts of the painter that can for a moment compare with the fruits and vegetables themselves, fresh from God's own hand. If it were not for putting in so many wants I would also urge you to locate near a *railroad depot.* This will be very desirable if you can make it, for, sooner or later, you will be sending plants by both mail and express, and it will not be *very* strange if the crops you receive from this quarter-acre will be shipped by *freight* as well as by express.

Before we go further we should consider the question of water. The man who gardens on a quarter of an acre should know no such thing as a drouth or lack of water. In fact, his greatest income is to be during drouths, and unfavorable seasons for working in the soil ordinarily. If your quarter-acre is a square plot, you want either a well or hydrant right in the center. If it is oblong you will need two hydrants—one in the middle of each end or toward each end. There is no objection to having a *well* in the center; but where large quantities of water are to be used we want a windmill, tank, or reservoir, and these large objects must be out of the way somewhere, where they will not shade the garden. In fact, there should be no structure nor object in this whole quarter-acre that comes up more than two feet high. If it does it throws a shade, and we can not afford to have "shadows" working against us. If you have your plot square, a hose should be attached to the hydrant in the center, with length sufficient to reach every one of the four corners. This hose should have on the end a sprinkler, like that used on large-sized sprinkling-cans. The perforations must be through a plate of zinc, or copper, which is still better. You want something that will neither clog nor rust. When the wagon is loaded up with vegetables to be taken around to the houses, it is to be driven along this main street I have been so emphatic about, until opposite the middle of the garden. Then the hose and sprinkler are lifted up into the wagon, and the stuff all receives a good drenching. If the wagon comes around at nine o'clock in the morning, give the stuff another drenching. Make the radishes, beets, turnips, onions, etc., look as shiny and handsome as they do in the pictures in your seed catalogue. When you show them to your customers, make the *stuff* do the talking. If the weather is very hot and dry, spread pieces of coarse sacking over your products, to shield them from the sun, and keep this wet.

Perhaps it were well to mention here in regard to the matter of frost and snow. If you can't do so all at once, you are to lay your plans with the idea of ultimately being able to cover every bed on the quarter-acre with glass or cloth when a frost comes unexpectedly. As the improvements will in many cases be made little by little, as the business seems to warrant, we would make every move with a view of having *steam heat* also under each bed. This can be arranged at the same time you arrange for drainage. And, by the way, while we plan that no crop shall be lost through *lack* of moisture, we should also say that no crop should be lost on account of *excessive* moisture. Plan at the outset so as to take care of the most tremendous flood you ever heard of. I do not mean by this that we can plan to have our plant take a water-spout without injury, but we must fix for every thing short of that. If possible, have a roadway clear around the outside of your plant. Now, when I say we want a roadway wide enough for the wagon to cross the middle, both north and south, and east and west, you will think I am extravagant in roadways; but I believe it will pay. It is a great deal of work to *wheel* in stable manure, even on a quarter of an acre; and where you can drive right through the middle, clear up to the center, you can hustle things along a good deal faster. If you do not keep a horse of your own, when you hire one you want to have him do as much as possible, and get through as soon as possible, in order to stop expenses. Well, these roadways all around the outside, and through the middle, are to be outlets for the water when we have big rains. Aside from these we have tiles laid under the center of each bed, and these must have outlets that *can not* be stopped up. These carry out the water, and, when occasion demands it, carry in steam.

OPPOSITION IN THE BUSINESS OF MARKET-GARDENING.

A great deal of complaint is made at one time or another about overproduction, too many people being occupied in the same line of business, etc.; and it is true, that, at times, an oversupply in the market compels us to sell stuff perhaps *below* the cost of production. But at the same time, we should remember that, in almost every locality, every little while there is a scarcity of some particular product; and he who has a supply can fix his own price. Whatever we do, let us work for peace, friendship, and good will. Let me give you some illustrations. In our locality there is just one man who might be considered somewhat of a rival in growing small fruits and garden-stuff. But he and I are on the best of terms, and always expect to be. Both of us are professing Christians; and that alone, if nothing else, should hinder us from feeling even touchy toward each other. Well, whenever friend Green has a big crop of something at the same time that we also have a big crop, prices are pretty sure to go pretty low, and people will keep quoting Mr. Green, telling what large bunches he gives, and how low he sells. At one time we both had more green peas than the town could well take care of. But it also happens very often that we are both out of the same special product. Yesterday friend Green asked me if we could furnish him some lettuce to fill an order. Well, it happened that we had three nice beds of Grand Rapids lettuce about half grown. I had been telling people, however, who stopped to look at it as they went by, that they could have it if they were willing to pay 30 cts. per lb. for it; and for nearly two weeks we have been selling two or three dollars' worth a day at the above price. I cut it myself, and go over the beds, and take out the heads that are beginning to crowd their neighbors. In this way, each morning shows the beds just as full as they were the day before. No one could see that any one had taken out any at all. I told friend Green how it was; and although he said he could not afford to pay such a price, he said it was perfectly right and fair to charge it, for he himself was in the same predicament. In talking over supply and demand, it transpired that, while we both had an abundance of asparagus, so that the price had gone down to 8 or 10 cts. per lb., we were both behind on radishes, bunch onions, and a good many other things. Now, right here comes just one point in favor of

UNDERDRAINING AND SURFACE DRAINING.

It is now almost June 1, and we are hoeing Corey sweet corn three or four inches high. It is too wet to hoe to good advantage; but by taking clean, sharp-toothed rake hoes, the boys were mellowing up the ground so it could dry out faster, pretty fairly. Said I:

"Friend Green, have you any sweet corn as large as this?"

"Why, no, Mr. Root, I don't believe I have, in one sense. In another sense, I have some that is considerably higher."

"Well, friend G., how did you manage to get any considerably higher, in any sense of the word, during this wet season?"

"Why, it is this way, Mr. Root. It is higher, because it is upstairs in a bag, waiting for the ground to dry, so it can be planted; for, to tell the truth, I have not yet planted a kernel of early corn."

Now, friends, you see the point. We have three pieces of Corey's early corn that is up. Where we were then working was on a side hill fronting the south, and underdrains were laid just 20 feet apart. When I did it my conscience troubled me a little for fear that I was going to extremes on underdraining. But just now this piece of ground is the only spot on our premises where I could use a horse and cultivator. The frequent drains, with good slope straight down the hill, did the business. A great bank of earth runs along on the crest of the hill thrown up by the new railroad, so I have a fine protection from north winds, a southern slope, and almost perfect underdraining, so this will give me a fine stock of early sweet corn when there probably is not, and will not be for weeks, any more in the county. And now I wish to put in a word right here in regard to

SURFACE DRAINS TO KEEP THE WATER FROM RUNNING FROM YOUR NEIGHBOR'S GROUND DOWN ON YOUR OWN.

After I had got in my drains 20 feet apart, so much water came down the embankment thrown up by the railroad that it was continually washing yellow clay over the suface of my enriched garden soil; and I finally went to the expense of making a shallow open ditch clear along the foot of the embankment, so as to carry the water from both ways *away* from my ground instead of *across* it. In the same way I have been gradually making shallow open ditches clear around all of my premises, wherever there is any danger that any water may come in on my ground; and these open ditches also carry the surface water speedily away from my own land; and every time we plow and cultivate, we keep constantly in view and work toward this end of making all ground slope toward these open ditches. The furrows between the crops are always left open, when we stop cultivating, so the water can get out of them into the before-mentioned open ditches. During this remarkably wet spring of 1892 this has been a wonderful help toward getting our grounds dry and keeping them dry. In fact, while it rains I keep watching these open ditches, and every little while a man is sent out with a shovel to open the ends of the furrows, and thus help the water to run away. You see, the point is, when everybody else has their crops drowned out by the excessive water, my own are going to be almost unharmed. Now, please do not think that I am altogether selfish in this line. There are very many reasons why it is better for one man to have a good crop in a neighborhood than that there should be no good crop at all. One particular reason is, that he teaches his neighbors what may be done by incessant watching and planning.

Now, then, my friends, are you sure that the north boundary of your land has surface drains so that no water in a time of great flood can pour over into your premises in that direction? If so, how is it about the east side, and the south side, and the west side? And, again, have these open ditches as well as these underdrains good sufficient outlets at all times? Obstructions left carelessly in the bottom of drains often hinder them from doing their work, to the extent of great loss of property or even of life. Again and again I have noticed my water-passages temporarily stopped by some work that is going on; and I have said to myself, "I am sure we shall get around to fix it before a big rain comes. It does not look a bit like rain, nor act like rain." But almost every time it has seemed as if I paid the penalty for my negligence. The careful grower should be always ready for a tremendous rain that may come unexpectedly. Whatever you do, don't have your plant-garden ruined by a flood.

SELLING ONION-PLANTS.

It has rained again to-day, and the ground is so wet I hardly knew what to do with the troop of boys that just came in from school; but just in the nick of time one of the express clerks announced that there was an order for 2500 onion-plants as quick as we could put them up. One of the boys who packs the plants provided himself with some rubber bands and strips of oiled paper, and stationed himself near a pile of sash. The schoolboys lifted the onions carefully from the soil, counted them in bunches of 50, and then passed them on to be tied up; and by working all together, with a hint now and then from your humble servant, within one hour after the letter was opened the plants were on the train for their destination. By the way, few things in market-gardening have pleased me as much as this onion-plant business. In order to have good strong plants to put out in the fields, we have pushed them pretty freely with guano; and if the tops get so tall as to begin to lop over, we shear them off. By the way, these trimmings are just the things to cut up with salt and vinegar and pepper, for the table. These onions are so tenacious of life that I have seen every one grow in a long row through a large field, when the planting was done by schoolboys so small that I feared they would not be able to do it successfully. The ground was fine and mellow; and as it was just after a rain, all that the boys did was to push the onion down into the ground with their forefingers, and then press a little earth on top of them. No matter how crookedly they stuck them into the ground, they all stood up straight in a few days. The ground was marked out for onion-plants with a wheat-drill, running a good dressing of fertilizer into the ground at the same time that it was marked. We plant the onions in every other drill-mark.

OURSELVES AND OUR NEIGHBORS.

And God blessed them, and God said unto them, Be fruitful, and multiply, and replenish the earth, and subdue it: and have dominion over the fish of the sea, and over the fowl of the air, and over every living thing that moveth upon the earth.—GEN. 1:28.

When I gave them that talk of an hour and a quarter at San Jacinto, as referred to in another column, I commenced something like this: Said I, "My friends, I have been asking myself, over and over again, what I should talk to you about; in other words, why did God send me away off here? and what does he want me to do? Well, the replies came, as nearly as I can understand, that I am sent here to hunt up *God's gifts to the children of men;* and my talk to you to-day will be in regard to these gifts."

Now, instead of talking to-day about God's gifts which I saw and found round about San Jacinto, I am going to speak of some of them that I have found right around home here in Ohio. The way I ran on to them, seemingly by accident, was something like this: One day as I sat at my table a letter was placed before me from which I make the following extract:

> Last season I used about 100 feet of bed heated with live steam, blowing it into two rows of drain tile under the bed. This season I am using 1000 feet of bed heated in the same manner. It is working very well, bringing the young plants through the recent cold weather in good shape. A month or two later I may be able to give some points on this way of heating. If it is satisfactory this season, I expect to arrange all my beds for steam heat, using only enough manure to keep the soil rich. My object is, to get a heat that can be controlled. The manure-bed is often too hot when warm days come, causing a soft, weak, spindling growth, even when all covering is removed. D. CUMMINS.
>
> Conneaut, O., April 22.

I at once wrote to friend C., begging an invitation to come and see how he used live steam to help him grow tomato-plants to supply the farmers who raise tomatoes for the great Lake Shore Canning-Factory at Conneaut, O. I presume you already know that I am deeply interested in this matter of using steam heat through drain tile, in place of fermenting manure, to heat hot-beds. I found friend Cummins waiting for me at the station, with a horse and buggy; and on the way to his home and factory he gave me the following (to me) precious bits of history. Thirty or forty years ago he was a harness-maker by trade. There was not business in the shop, and, besides, it was a little confining for one who loved to be outdoors as well as he did. He went back into the garden near the shop and started a hot-bed for raising tomato-plants. When he got some nice plants, of course they sold for a good price, as they always do. So he enlarged his hot-beds until finally his plant-business covered the greater part of an acre right in town; and when he got to a point where he made a *thousand dollars*, besides supporting his family, on this *one acre* in *one season*, there was quite a stir in the community. I presume others did not go and do likewise all at once, for they had probably noticed that he did a great deal of hard work, and was out among his plants at almost all times of day, and sometimes even in the night. Well, he not only grew nice plants, but he grew so many nice *tomatoes* that the whole town could not take care of them. Finally he went to the tin-shop and bought some cans. If I remember correctly, the cans cost him somewhere between ten and fifteen cents apiece. But he canned his tomatoes that were spoiling; and as he did it well, as he does every thing else, they did not want for purchasers. Next year he canned more; and by this means he got the cans a little cheaper, and was enabled to sell for a little less money. Every year the business kept increasing. His family of boys, three in number, although they didn't care much about the "garden sass" part of the business, liked the part pertaining to making cans and putting up tomatoes; and now the Lake Shore Canning-Factory is not only *one* of the oldest, but perhaps *the* oldest successful institution of the kind that gives employment to hundreds of men and women, and furnishes the farmers for miles around with a new industry in the way of tomato-growing. Friend C. said that he very soon decided that, to make his factory a success, he would have to save his own seeds, raise his own plants, and supply the farmers at the proper season with the plants he wished to use to produce the product that was to fill his cans. In order to keep business going during the dull seasons, they manufacture cans all through the year, employing various expensive automatic machinery that folds up the tin, solders the joints, and finally sends word down to the office below, just how many they are making an hour for every working hour in the day. If there is any hitch in the machine or among the hands, the dial of the counter tells it as plainly as the clock near by tells the hours of the day. Some of this expensive automatic machinery has been purchased, but the greater part of it is the invention of friend C. and his boys; and the pleasant way in which the family seem to work together reminded me forcibly of the Home of the Honey-bees.

Now, although it may be a little foreign to my subject, I wish to say a word in regard to the way in which friend Cummins has built up a beautiful home, and made it a veritable little temple of *God's gifts*. In the first place, he has a cistern in the attic. Of course, it stands on a solid foundation, and is strongly made of boards spiked together flatwise. After being sufficiently braced and strengthened it is lined with tinned copper; and as its upper edge is level with the conductor under the eaves, when the cistern is full no more runs into it, but the water runs off through the waste-pipe, or conductor, in the ordinary manner. This cistern supplies a closet adjoining every bedroom, with beautiful soft water, for washing, bathing, or for use in the water-closet. Next, he has on his own premises three wells that furnish natural gas. This natural gas does the cooking, lighting, and part of the heating, and furnishes either hot or cold water in every one of the wash-rooms before mentioned. As the gas is his own, and costs nothing except putting in the plant, little gas-jets are burning day and night; so when you need light or heat you do not have to even scratch a match—simply turn a valve or move a lever with the foot. Well, besides having water, both hot and cold, and heat, at pleasure, he has one of the most perfect systems of ventilation that I have ever seen. Abundance of pure air is taken from outdoors; but it is carried into the rooms so quietly and gently that no draft is ever felt anywhere. Before I retired for the night, friend C. stepped to one of the windows and pulled down one of the upper sash. As the sash came down, a wire screen followed it. The wire screen was incased, when the building was made, in a cavity just above the window. When you want the breeze from outdoors to blow in, the screen comes down automatically and keeps out insects or too heavy a draft; and when you don't want it, it goes up into its cavity, and stands like a faithful sentinel until wanted again. The kitchen is a model of convenience, simplicity, and neatness. In fact, about all the housewife or help has to do is to sit down and pull levers, a great deal as a locomotive engineer handles his train and gives orders to his men. Now, water, air, light, and heat are not the only gifts of God that are pressed into service. Electricity also plays a part; and if you are sick in the night, and wish to summon some of the household, you may do it by pressing on an electric button, which is to be found close by the side of the bed in any of the sleeping-rooms. Of course, there is a windmill surmounting the neatly arranged carriage-house and stable. This mill sends soft well water, almost but not quite as soft as that which comes from the clouds, to any part of the premises, in case there should be a continued drouth, or when water in greater quantity is needed than it would be wise to draw from the cistern in the attic. So perfect are all these helps and aids that the kitchen help has plenty of time to take a seat at the table with the rest; and I suppose you know that, on general principles, A. I. Root would always prefer to take his meals at the same table where his helpers take theirs. The best part of all the above is, that the whole is the work of himself and his boys, even to the plumbing and piping and hard-wood finishing of the various apartments.

Of course, I saw the hot-beds; and I smiled to see that they were covered with cloth, on a plan quite similar to the one used by friend Day; but, unlike friend Day, he uses steam, sent through common drain tiles, to warm up the beds. As the beds are all alike, and the strips of cloth that cover them are also alike, whenever a freeze comes they can put two or more blankets over the same seed-bed; and with plenty of blankets above, and live steam in the tile underneath, there is no trouble about keeping off the frost. Years ago they adopted beds only five feet wide. This makes it easy for the boys and girls to reach across in transplanting, weeding, sowing seeds, etc. I say *girls*, because they told me they had been doing what I had thought of for years—that is, employing girls and women outdoors to raise plants.

It rained all the time, pretty much, while I was there. They said if I would wait until the sun came out I could not only see the thing at work, but I might take views of the workwomen as well as of the beds, with my Kodak. Of course, I shall have to give the views a little later on. Before they used cloth in their hot-beds, they had a plan of using boards that I think may be useful to many of the readers. Boards about one foot wide are cut into lengths of a little more than five feet. By the use of these one man alone can cover and uncover the beds without assistance. As the boards are stripped off they are piled in heaps along the path. Almost any old boards will do, if they have straight edges. These can be used with the cloth, or entirely without the cloth. Their cloth covers, instead of being rolled up on a pole, are simply spread over the bed, and rings sewed in the selvage at intervals are hooked over nails driven part way in on the outside of the bed; and these rings, hooked over the appropriate nails, give the neat white sheet covers with their scalloped edges a very pretty appearance. Notwithstanding the rain (after I had looked over the premises pretty well) our good friend C. got out the horse and buggy and took me to the residence of Mr. Emery Ransom, Amboy, Ohio, a mile and a half away. Mr. R. is also an extensive plant-grower and gardener; but he raises vegetable-plants for sale, while our friends at the canning-factory raise tomato-plants for their own use only. Mr. Ransom has a very pretty little greenhouse, and also quite an array of plant-beds. He is the friend mentioned (see page 784, Oct., 1891) who raised $60.00 worth of cucumbers in three hot-beds, each 30 feet long. He showed me certainly the most beautiful cucumbers, lettuce, and a variety of other vegetables grown under glass, that I ever met in my life; and he also is now full of life and animation in regard to heating his beds by steam. As he owns a steam-mill only a few hundred feet from his home, this will become an easy matter; and I found about a quarter of an acre on the side of the hill, with a southern slope, already divided off into beds, and the pipes laid for warming them up. It seemed to me as if he were just beginning to catch a glimpse of the hidden treasures that God has stored away for his children—that is, the children who care to take the trouble to *reach out* and appropriate them.

It rained all the time I was there; but this glimpse of verdure and thrift and beauty that I got in perhaps one hour will long last to memory's view, even if the Kodak did not catch on very well because of the rain. Before I started for home our good friends urged that I must certainly call at the Record manufacturing establishment, as Mr. Record is the man of whom we get all our honey and syrup cans. Now, I can not take space to tell you of all the wonderful machines I saw there for making cans of a larger capacity than those produced by friend Cummins; but I want to tell you how surprised I was to see them making *American tin plate* right here in one corner of our State of Ohio. Imagine a great vat of molten tin, glistening and rippling, as it were, like so much quicksilver. Underneath this molten tin, ponderous machinery is doing its work, apparently oblivious of the intense heat of the molten metal that must fill every crack and crevice in the machinery. At one end of the vat stands a man who feeds the iron plates. These iron plates are also made in our own *United States*, mind you. Well, out of this pool of molten tin comes a pair of jaws, making one think of the crocodiles of the Mississippi River. These crocodile jaws seize the sheet of iron, as if it were just what they had been fed on all their lives, and down went the jaws and all. Just then I noticed, some distance away, at another part of the tank, sheets of shining, glistening tin, perfectly covered, popping themselves up, ready for some kind friend to stretch forth a helping hand and lift them out of their—purgatory, shall I call it? I don't quite like the word, after all; for the tin is so beautiful as it comes out that it suggests the thought of our text, or the subject of my talk, rather—God's gifts. By the way, as the glittering sheets kept coming up as fast as the man reached out for them, it made me think of Sir Launcelot of old, when, in time of direst need, the sword-hilt came up out of the water ready for his hand to grasp it. Through the intervention of man with intelligence, these sheets of tin are rising out of the depths and heat, ready for man to grasp them—a gift of God in very truth, even if political machinery *may* have had something to do with their birth on American shores. I asked a good many questions about the quality, cost of making, etc., to all of which Mr. Record replied that we had finally arrived at a point where he could give satisfactory answers. We can not only make as good tin as there is on the face of the earth, but we are making it at a price that pays. If you ask whom it pays, I answer, it pays the man who makes it, him who buys it, him who uses it for tea-kettles, cans for his tomatoes, etc. I was pleased to note that this great achievement, like other great things nowadays, has not been brought about without the aid of women-folks. In fact, three smart women stood ready to receive the sheets of tin as soon as they were cold enough to handle, and, with heaps of wheat shorts or middlings on their three respective tables, they gave the tin such a scouring and rubbing that it was free from all acid or flux, or any thing else that might tend to rust or dim its brilliancy. The whole establishment of the Record Manufacturing Co. seemed to be *alive* with God's gifts. Of course, however, they were like the boy's potatoes. He said, in reply to a question, that they did not "turn out" at *all*—he had to *dig* them out. While waiting a minute or two in the office I noticed a great pile of books that had a striking resemblance to the Gospel Hymns we use at our noon service; and then it turned out that they too have a noon service every Saturday afternoon, before the men and women (two or three hundred of them) get their pay. They have something like *our* noonday service, and I presume very likely they sing hymns about God's gifts to the children of men, and take their Saturday night's pay as a veritable gift from God. Oh! do you see, my good friend, what a grand thing it is to have employer and employe who are *acquainted* with each other—yes, acquainted through Christ Jesus who died for all? Suppose an employer, when he shows a visitor through his factory, could say, "Gentlemen, here is the place where *myself* and *my neighbors* enjoy working together"—capital and labor, linked together, through a tie that *God* has instituted, and *linked*, too, in a *neighborly* and *friendly* way.

On my way home I discovered that I had to wait in Cleveland two or three hours. A little inquiry brought out the fact that part of the waiting time might be managed so as to come at North Ridgeville, O.; and as I stepped from the cars at the above named point the old gentleman who carried the mail informed me that he knew O. J. Terrill quite well; but he lived about a mile from the station. In due time I set foot in the dooryard of another home belonging to one who loves God's gifts in the shape of vegetables and garden-stuff. Why, it is worth traveling a good *many* miles, not only to see that pretty home, but to see the shining welcome in the face of my good friend; but when I told him that I should have to take the next train for Medina, and he discovered that I had only about twenty minutes to visit with him, the sunshine vanished from his face at once. "Look here, Mr. Root, what did you come here for, to stay just twenty minutes and no more?"

"Now, don't scold, friend T. I did not *come* here at all. I just had to wait for a train, and I thought I would rather wait here than in the great city of Cleveland."

Well, what should we do with that twenty minutes? There was a greenhouse, and frames for all the plants like those I saw at friend Ransom's; and how I *did* long to look over the plants! But he said his wife and family had read GLEANINGS so long they would never forgive me if I did not go in and just speak to them. When I suggested that he had got more beautiful tomato-plants than he could probably sell in that locality, he pointed to a little board tacked to the top of the bed, where I read something like this: "4592 tomato-plants sold to John Smith." And then he informed me that pretty much all the stuff he had was in that same predicament, only waiting for milder weather to let the owners take them away. God's gifts, again.

What kind, pleasant neighbors we can always find if we *look* for them! and what little gardens of Eden there are scattered throughout this land of ours, if we only *knew* it! The text gives us a hint of what God expects us to do—"And have dominion over the fish of the sea, and over the fowl of the air, and over every living thing that creepeth upon the earth." And in the next two verses it speaks about having given us every *green herb*, as well as the birds and fishes—yes, every herb bearing seed; and he says it shall be to us for meat. Do you, my friend, believe that the outcome of all this beautiful world of ours is to be only destruction and death and ruin? Why, the idea is ridiculous. There may be some things wrong in this world of ours; but God has laid upon us the responsibility of righting them. And very *little* faith in him, and faith in and love for our fellow-men will do a *tremendous lot* of righting.

GLEANINGS IN BEE CULTURE

A Journal Devoted to Bees and Honey and Home Interests.
Illustrated Semi-Monthly
36 Pages 7×10
$1.00 Per Year.

Thou madest man to have dominion over the works of thy hands; thou hast put all things under his feet.—PSALM 8: 6.

THE first number of the *National Bee Gazette*, published at St. Louis, Mo., by Geo. H. Penn, comes out neatly printed, and very nicely bound in magazine form, with a tinted cover. GLEANINGS extends its right hand of welcome.

IN Stray Straws, in the present number, Dr. Miller wants to know whether it is the thorax or the abdomen that prevents the queen from going through the zinc. It is both; but more the abdomen than the thorax, and that is the reason why an occasional virgin queen will go through, when, after she begins laying, she will fail to do so.

WE notice, in one of the agricultural exchanges, that the V edge of the Hoffman frame is strongly objected to, on the ground that the sharp edges will come together in some cases, and in others the square edges, and destroy correct spacing. If the frames are nailed up as per our catalogue, the V edge will always come next to the square edge, and they can't come any other way.

DR. MILLER is bound to see fun in all things. How could he read (see Straws) that the Big Four were going to have their *ears* painted with yellow ocher? We had it printed right—*cars*. It is possible, however, that, in the doctor's journal, it was printed ears. But the typos shake their heads. Say, doctor, hadn't you better get another pair of those 25-cent specs?

THE great unsolved problem in bee-keeping is, to control swarms when working for comb honey, or, at least, make it possible for an outapiary to be run so as not to require the constant attention of a managing apiarist. Automatic swarmers, while far from perfect, give us hope. While they may in time become an entire success, they may prove to be only an utter failure. Let us go slow, and make sure.

THE Rev. L. L. Langstroth, the father of American bee-keeping, has recently been relieved of one of his distressing brain troubles—a peculiar malady that seems to afflict him for two or three years at a time. He is now feeling so very much better that he expects to make a visit to the Home of the Honey-bees, and look upon the faces of the big and little Roots, and also to see with his own eyes "how the little acorn, GLEANINGS, that I saw in 1875, has grown into such a large oak." Of course, we will try to give to the readers of GLEANINGS the benefit of his visit, so far as we may be able on paper.

THE initial number of the *National Bee Gazette* copied a last year's advertisement of the W. T. Falconer Manufacturing Co., Jamestown, N. Y., in which the company offer a five per cent discount on all goods. This advertisement (no doubt intended as a favor), we were informed by the company, was inserted without authority, and therefore it causes them a good deal of annoyance, because they are not now offering any discount on their goods. By the way, it is a rather bad idea to insert an advertisement, free or otherwise, without first consulting the parties in question.

SINCE our statistical report published on page 297, April 15, it is evident, from the letters coming in every day, that the past spring weather has been rather destructive to bees. Many have lost from half to two-thirds of their colonies since April 15. Reports also show that fruit-bloom while it lasted was exceptionally good. In the two days that our bees had a chance at it, they gathered quite a quantity of honey—the stronger colonies getting enough to nearly fill the hives. But it has been raining nearly every day for the last month, and the poor little fellows have had to gather what nectar they did in between times, or when the honey was not entirely washed out of the blossoms.

ON p. 382 of this issue, Miss Wilson contributes a valuable article on how to remove propolis from supers, separators, etc. The idea is not entirely new, because something of the kind has been advocated before. But for some reason or other the times were not ripe enough to recognize the value of the plan. This is something that our subscribers can put to the test at once. Any thing is an improvement over scraping, resulting in particles of propolis flying all around. By the way, we hope our readers will also test the use of grease rubbed over the contact parts of brood-frames for preventing the deposition of propolis. Oh, yes! prevention is better than cure; but it is very desirable sometimes to have a cure when prevention is not, or, rather, *was* not, available.

LIGHT BROOD FOUNDATION VERSUS MEDIUM BROOD FOR WIRED FRAMES.

LAST fall, in our experiments with light brood foundation we found there was no trouble about its buckling when being drawn out by the bees on horizontal wiring. This spring we find that it does buckle, much to our astonishment. This is somewhat humiliating to confess after having once or twice recommended this light brood. It is provoking that bees will not always do things alike. Why didn't they make the foundation buckle last fall, as well as this spring, under conditions that seem to be precisely parallel, and saved us this mortification? However, there is no trouble with *medium* brood foundation on horizontal wires, and we believe that it is this grade that is used and recommended by those who are enthusiastic on horizontal wiring.

CURRANT WORMS—LOOK OUT!

DAY before yesterday I was showing Mrs. Root our great thrifty gooseberry-bushes, loaded with fruit, and I pointed to the fact that not a currant worm had as yet made its appearance. Just 48 hours after, two large fine bushes were stripped of their leaves, so that nothing but the green fruit hung from bare poles. For a while I was pretty nearly as mad as a Christian has any right to be. Didn't I dust those fellows with hellebore! and then didn't I make huge resolutions that I would watch my gooseberry and currant bushes *every* day instead of every *other* day! You see, these fellows live over winter in the ground. They got pretty bad last fall when I was sick, and so I had not watched for them. But I presume the weather had kept them back until the conditions were just right, and then they just "went in" for my choice gooseberries. Now, remember you have had a fair warning. A stitch in time certainly saves nine. A. I. R.

SPRAYING, AND THE WAY IT IS DAMAGING BEE-KEEPING INTERESTS.

THE following are samples of some of the reports that we get from time to time, proving beyond doubt that spraying while the trees are in bloom is fearfully destructive to bees:

Friend Root: Reports come from Strawtown, seven miles northeast of here, that the farmers' bees are all dying, caused, as suspected, from fruit-tree spraying. Force-pump agents have canvassed that country with their machines, and excited the whole neighborhood. The next thing will be the ruin of their orchards by using insecticides too strong. G. L. HOLLENBACH.

Noblesville, Ind., May 23.

In your journal of May 1st I read Prof. Cook's letter on the spraying of trees while in bloom. I am very much pleased with his letter, and believe it is the most valuable one that has appeared in the journal for many years. Judging from the poisoned colonies that I examined after they were killed by neighbors mixing Paris green in honey and placing it where the bees took it, and from all the reports of the killing of bees by ignorant fruit-growers spraying trees while in bloom, I *consider it a very dangerous thing to spray fruit-trees with Paris green while they are in bloom.* If the fruit-trees in every locality were sprayed with poison while in full bloom it would kill every colony of bees; and, what would be still worse, it would kill every family that used the honey after the bees were poisoned. WM. MCEVOY.

Foul-brood Inspector for the Province of Ont., Can.
Woodburn, May 23.

That spraying does kill bees when improperly done, can not now be disproved. Facts are stubborn things, and what bee-keepers need to do is to labor with the pump-manufacturers, and induce them to modify their directions so as not to be injurious to the bee-keeping interests. Prof. Cook's article on page 322 (May 1st issue) covers the whole question, and we shall be glad to mail it to any address that may be given to us. If we get out of this number we will print extra leaflets of the article, for gratuitous distribution.

INCORPORATION OF THE N. A. B. K. A., AGAIN.

THE following from Prof. Cook, has our most hearty indorsement; and if the Canadian quartet or trio, as the case may be, can not meet us half way on one of the suggestions given by the professor, they are hard to please indeed.

Mr. Editor: May I have a word regarding this matter which has so agitated some of our good friends, and led to action which I can not but consider hasty and unfortunate in the last degree? The scientist and the apiarist can not afford to know Canada or the United States. We are all working together for a common purpose, and should exercise the fullest regard and sympathy for all of like pursuits. Hence I say: if incorporation must estrange or offend any one, let us throw the whole thing to the winds. We surely can do without it, for we have. It certainly offers no adequate compensation if it shall alienate any of our brothers over the line. We have been, to our great advantage, as one, in the past. We must continue to act together. But why do our Canadian friends object? The act of incorporation only means that we can do business. *Where* we are incorporated is of no importance. If the friends over the line desire, let us incorporate there. I am sure none of us would object. That all may know that there is precedent for just this thing, let me say that the American Association for the Advancement of Science—our greatest American scientific society—is incorporated. The incorporation was secured in Massachusetts; yet many Canadians are among our best members, and two of the best meetings I have ever attended were held on Canadian soil—the one at Montreal, the other at Toronto. I have never learned that any Canadian scientist felt aggrieved at this; and certainly the old A. A. A. S. has been a power for good to all connected with it. A. J. COOK.

The North American, in its act of Incorporation, did just the very thing that other like societies have done, and many other instances might be given; but the one cited by Prof. Cook is a case quite parallel to that of the N. A. B. K. A. If the Canadians accept that as being orthodox in the one case, why can they not in the other? As we have said before, we will do any thing that will help toward pleasant and harmonious relation with that whole-souled body of Canadian bee-keepers.

PAINT FOR BEE-HIVES, AGAIN.

THE other day we were talking with an experienced painter. Said he, "You are right in advocating yellow French ocher for paints having this most excellent pigment in them. American yellow ocher is fair; but, let *gray* ocher entirely alone. It is but little better than first-class mud mixed with oil." And while speaking of adulterants he added, "Next to spices there is probably nothing that is adulterated more than paint."

There may be some of our readers who would like to know where to get absolutely pure white lead ground in pure linseed oil. We would refer all such to Harrison Brothers, of Philadelphia.

You can probably get it of your dealer if you insist on getting it, even though it does cost more. In this connection we would say that this is published without the knowledge of the afore-mentioned firm. Neither do we expect nor would we accept any bonus for such a notice. It gives us pleasure, however, to recommend pure honest goods; and we know that there are some of our bee-keeping friends who want only pure lead on their hives. There are probably other manufacturers of paint who sell just as good lead, but they are also scarce.

Why is paint so generally adulterated? It was explained in this way: A painter who can paint a house for the least money gets the job, irrespective of the enduring qualities of the paint. This thing has been carried on so extensively by contractors and painters (not through any fault of theirs, however, but through the fault of the consumers), that different painters and contractors, in order to compete with each other, have been obliged to buy paint adulterated with cheap and absolutely worse than worse worthless pigments.

Our painter friend also added, in conclusion, that the priming-coat should always be of the very best paint. There is a sort of popular impression that anybody can put on the first coat, and it does not make very much difference what sort of paint it is. "Better a good painter with poor paint," said our friend, "than a poor painter with good paint. But better by far is a good painter with good paint." If you are not a practical painter, and wish to do the work as economically as possible, and yet do it well, buy the ready-mixed paints of known purity.

PROF. WILEY AND ADULTERATED HONEY.

ON page 356 of last issue, under the head of Special Notices appeared a correction exonerating Prof. Wiley from one of the charges made against him. We were so anxious to state only absolute truth that we felt called upon to make a correction in the same number; but we have since learned, that, while Mr. Charles F. Muth did not *send* samples of honey to Prof. Wiley to be analyzed, he left with him some samples of pure honey at a convention. Prof. Wiley took them with him, and, after making an analysis, reported that they were "probably" adulterated or "probably" pure. Of course, this placed a ban upon Mr. Muth's honey; so, while our statement on page 387 was not strictly correct in detail, the main fact remains essentially the same. We stand ready at any time to make corrections, where we have made a misstatement, and we also do all we possibly can to get at the exact facts.

Prof. Cook, in another column, is much more charitable toward Prof. Wiley than we were on page 386, last issue; and it is very possible that we were a little harsh in our criticism. If so, we beg Prof. W.'s pardon. But when we remembered the effect of his "scientific pleasantry," and that he had pronounced samples of pure honey, obtained from C. F. Muth, "probably pure" or "probably adulterated," and when, too, we read the report, just out, reflecting against many of our best and most reliable commission houses, particularly that of C. F. Muth, we feel as if our pursuit had been wronged, and that strong language was justifiable.

On page 640 of GLEANINGS for 1888 appears a very able article from Prof. Cook, on the tests of honey. In this article friend Cook says:

> We see, then, that the chemist can not tell us absolutely whether honey is adulterated or not. There is reason to believe that absolutely pure honey has been pronounced as probably adulterated. The chemist was honest and able, but did not understand the whole question or its many difficulties.

A little further on, in the same article, Prof. Cook shows very plainly that the polariscope is very unreliable in detecting adulterations in honey. Prof. Wiley, in spite of all his facilities, seems not to know, or to have overlooked all of this. If he had taken the pains to analyze samples of honey of known purity, that he could have obtained easily from reliable beekeepers who would obtain the honey direct from the hive, he would probably have seen how they differ from each other, and that the methods he has employed all along were unreliable.

We do not wish to do Prof. Wiley or his associates any injustice; but we do think our chief chemist of the government ought to inform himself properly in regard to the proper constituents of honey, instead of jumping at conclusions, as we know he has done, from evidence in some of his published statements; for instance, the Wilev canard about manufactured comb.

Later.—Since the above was written we discover an article in the *Chautauquan* for June, 1892, by Prof. Wiley, on the subject of "Something about our Sugar." We have glanced hastily through the article. It reads well, and no doubt it is correct in the main; but somehow our confidence is somewhat shaken when we read such a sentence as this, which we copy: "Artificial comb foundation is often supplied to the bees; *and this is sometimes so perfect that the bees have little to do in completing a cell except to cover it.*" The italics are ours. This is another evidence of how Prof. Wiley sometimes writes about things when he has only a superficial knowledge of the thing in question. While there is an element of truth in this quotation, it is very misleading. All foundation that is sent out, so far, is only foundation, from $\frac{1}{16}$ to $\frac{3}{16}$ inch thick, and the bees have to draw out and thin out the cell-walls, and then cover them, after filling them with honey. The capping, or covering, of the cell is only a very small part of the whole work. By the way, we shall be glad to make Prof. Wiley a present of a nice colony of bees if he will accept them, and then he can study nature as it is.

STEAM AS MANURE, ETC.

PERHAPS some of the friends may think that A. I. Root is crowding his gardening hobby a good deal in this issue of GLEANINGS. Even the boss printer suggested that the Home Talks and the Garden department had in some way run into each other a good deal in this number. Never mind; if we make a mistake in taking too much space in discussing God's precious gifts, it will not be a very bad mistake. And now here is another one that seems bursting forth right before my very eyes. When I commenced planting rows of different crops across that pipe that carries the exhaust steam, again and again did it seem to force itself on to me that the steam was acting like stable manure. The Hubbard squashes, the American Wonder peas, strawberries, and every thing else, assumed a rich dark green right over that hot drain tile, as if a great quantity of very rich manure had been strung along that very spot. Well, a few days ago Prof. W. J. Green, of the Ohio Experiment Station, dropped in upon us; and when I mentioned the matter to him he answered at once, "Why, Mr. Root, the steam *is* manure, or, at least, it amounts to the same thing, for it has, without question, been unlocking the nitrates in your soil;" and we estimated that the effect of this steam-pipe showed itself on the plants from five to eight feet away from the tile; so if we ran steam under a quarter of an acre of ground, with pipes even fifteen feet apart, the whole plot would be from two weeks to a month earlier than ground without the steam, and this entirely without protection.

Our Warfield strawberries, right over the heat, are full of green berries, almost large enough to color, and runners have been out thickly for two or three weeks past. Some are even now taking root. Here is a hint for propagating some choice variety of strawberry when there happens to be a demand for it. Just now it looks to me as if that strawberry is to be the Parker Earl. It is ahead of any thing else on our grounds, all things considered. Michel's Early was the first to blossom; and if it bears such a crop as the blossoms at present indicate, we shall give it a place in our select list. No plant, however, that we have ever seen, bears such a quantity as the Jessie. The rows are now literally a bank of white, and the perfume is like that from an apple-orchard; and the humming of the bees over the blossoms, when it does not rain, is pretty nearly like that which we hear in an apple-orchard also. I think this is the last I shall have to say about God's gifts, in this issue, as the forms are being closed up.

ALWAYS ON TOP

Our Golden and Leather Colored Italian Queens. Bred for Business.

Tested, in June, $1.25; untested, 75c; 3 for $2.00. Our stock consists of 300 colonies devoted to bees and queens for the trade. **Orders filled by return mail.** Send for catalog of supplies, etc.

JNO. NEBEL & SON High Hill, Mo.

P. S. A. J. Fields, of Wheaton, Ind., writes: "The queen and bees received of you last spring made 147 lbs. of comb honey, and took first premium at three fairs." 8tfdb

☞In responding to this advertisement mention GLEANINGS

FREE! My new price list of **Pure Italian Bees, White and Brown Leghorn Chickens, White and Brown Ferrets, and Scotch Collie Pups.** Address

N. A. KNAPP, Rochester, Lorain Co., O.

8tfdb

The queen I got of you has more brood than any colony I have. A. MILLER, Trail, O.

Our Five-Banded Italians

Are the bees for business: gentle, and beauties.

FREE! The Amateur Bee-keeper, 52 pages; price 25c; one given free each day to the one sending the most money for queens. One warranted queen in May, $1.10; 6 for $5.50. June, $1.00 each; 6 for $5.00. Entire satisfaction guaranteed. 1-24db

S. F. & I. TREGO, Swedona, Ill.

☞In responding to this advertisement mention GLEANINGS.

FOR SALE.

50 colonies of Italian bees in A. I. Root's 8-frame Dovetailed and Langstroth's 10-frame hives, at five dollars per colony. A liberal discount for more than one colony. Safe delivery guaranteed. 8-11db

JOHN GRANT, Batavia, Ohio.

MARTIN'S PROLIFIC BUCKWHEAT.

Same kind as advertised last year in GLEANINGS. On my sandy soil it yields double the quantity per acre as Japanese. Gives excellent satisfaction. $1.00 per bu., cash, on board cars here, sacks included.

WM. MARTIN,
8-11db **Highland, Oakland Co., Mich.**

Mention this paper.

SECTIONS.

$2.50 to $3.50 per M. Bee-Hives and Fixtures cheap. **NOVELTY CO.,**
8tfdb **Rock Falls, Ilinois.**

☞In responding to this advertisement mention GLEANINGS

The Lone Star Apiary Sells

Golden Honey Queens at the

FOLLOWING LOW PRICES:

Untested, before June 1, $1.00; after, 75c. Tested, before June 1, $1.50; after June 1, $1.00. Safe arrival and satisfaction guaranteed. I breed a fine five-banded strain of Italians. Send for my price for 1892, and get prices on nuclei and full colonies. Cheaper than ever before known. Write for prices on large orders.

OTTO J. E. URBAN, PROP.,
THORNDALE, TEXAS,

☞In responding to this advertisement mention GLEANINGS.

BEESWAX!

Foreign and domestic. Crude and refined.
A stock constantly on hand.
Write for prices, stating quantity wanted.

ECKERMANN & WILL, Syracuse, N. Y.

☞In responding to this advertisement mention GLEANINGS.

---

500 Colonies of Bees Devoted to Queen-Rearing.

Write for prices on large quantities.

TWO MILLION SNOW-WHITE SECTIONS.

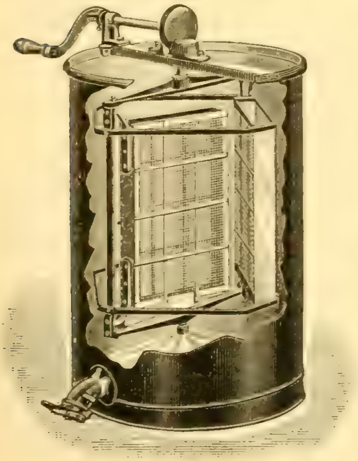
Write for prices on large quantities.

Send for our 24-Page Catalogue of Dovetailed Hives, Smokers, Extractors, Etc.

LEAHY M'F'G CO., Higginsville, Missouri.

Please mention this paper. 5tfdb

A Grand Success.



New Cowan Reversible Honey-Extractor.

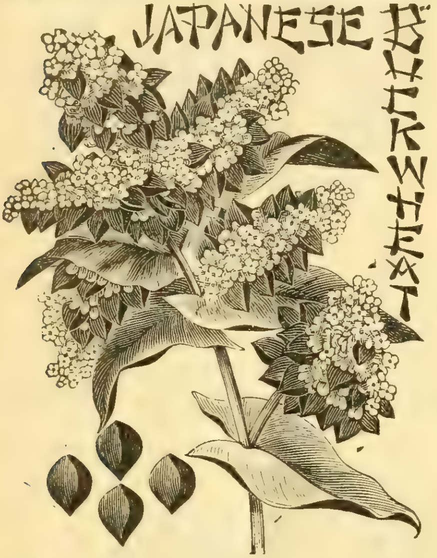
Read what Frank McNay and J. F. McIntyre say of it in May 15th issue.

Strong, well made in every respect, light, and of convenient size. The can is but little larger than that of the Novice. The gear is beveled, and covered by an iron shield as shown in the cut. Though not automatic, the two baskets can be operated about as rapidly.

Price all complete, japanned and lettered, for L. frame, $10.00.

A. I. ROOT, Medina, Ohio.

Japanese Buckwheat.



This is one of the most profitable of farm crops, and is especially valuable to the bee-keeper because of the pasturage it affords for the bees. It is harvested within three months from the time it is sown. Under fair treatment it yields 50 bushels to the acre, and rarely brings less than 50c per bushel. The time for seeding is at hand and we are prepared with several hundred bushels of choice seed, which we will sell, as long as it lasts, at the following prices. Former years we have run short and had to advance prices in June so as to supply orders without a loss. We hope to have enough this year for all orders, but we advise you not to put off ordering too long.

Per bushel, $1.00; ½ bushel, 60c; per peck, 35c; 1 lb., 5c. If wanted by mail, add 9c for postage. Two bushels for $1.90; 10 bushels or more, 90c per bushel. Above prices include bags to ship in.

A. I. ROOT, Medina, O.

SHORT-HORN CALVES

For sale. Registered in purchaser's name and delivered at express office in light crate (from one to six months old) $25.00 each; 20 head of cows and heifers, and 4 young bulls, cheap. For prices and breeding, address 7-8-9d

CALVIN LOVETT, Otsego, Mich.

☞In responding to this advertisement mention GLEANINGS.

1892 ROOT'S Dovetailed Hive 1892
at his prices. Circular free.
Golden Italian queens, $1.00 each, or 6 for $5.00.
1tfd GEO. W. COOK, Spring Hill, Kan.

Please mention this paper.

PUNIC QUEENS

FROM IMPORTED MOTHERS. Each, $2.00. This is a fine race of bees, and will give better results than any other race or strain. Ready to mail May 25.

HENRY ALLEY, Wenham, Mass.

BEES BY THE POUND.

Friends, yesterday I took control of 200 colonies of Italian and hybrid bees, that I will ship you in June and July. $1.25 per lb.; 10 or more, $1.15. Safe arrival guaranteed. Money-order office, Greenville.

MRS. JENNIE ATCHLEY,
11-12d **Floyd, Hunt Co., Texas.**

☞In responding to this advertisement mention GLEANINGS.

Choice Young Queens.

Improve your stock by introducing superior British queens, raised under most favorable conditions. Post free $2.00. Address

THE REV. C. BRERETON,
PULBOROUGH, SUSSEX, ENGLAND.

☞In responding to this advertisement mention

75c. Golden Queens by Return Mail. 75c.

My Golden Italians are good workers, and gentle. Queens are carefully bred from best stock. Three queens, $2.00; six for $3.50; dozen, $6.00. Safe arrival and satisfaction guaranteed. Money order office, Daytona, Fla.

JOHN B. CASE,
Port Orange, Vol. Co., Fla.

RABBITS. **Black and White, 40c a Pair.**
L. W. BOYDEN, Saline, Mich.

GOLDEN HONEY QUEENS.

Queens in June, untested, $1.00; ½ doz., $5.00; tested, $1.70; select tested, $2.50; extra select, $4.50; the very best, $8.00; imported, $6.00. Satisfaction guaranteed. LEININGER BROS., FT. JENNINGS, OHIO.

Queens From Imported

Stock, reared by Doolittle's method. Untested, 60c each; ½ doz., $3; one doz., $5.00. Tested, $1; ½ doz., $5. Virgins, $4 per doz. After July 1, untested, 50c each; virgins, $3 per doz. Send for circular and learn particulars. Reference, Chase Matz, Wells-Fargo Express Agent.

H. G. QUIRIN,
BELLEVUE, HURON CO., OHIO.

☞In responding to this advertisement mention GLEANINGS.

Queens! Queens! Queens!

If you want the best bees you ever saw in every respect, try my strain of Italians. Result of eight years' careful breeding. Warranted queens, each, $1.00; six, $4.50; doz., $8.00. Safe arrival guaranteed. If you prefer, pay on arrival. Make money orders payable at Apollo.

F. B. YOCKEY,
11-12d *NORTH WASHINGTON, WESTM'D CO., PA.*

☞In responding to this advertisement mention GLEANINGS.

GOLDEN CARNI-ITALIANS.

The largest, most beautiful, gentle, and industrious bees; try them and be convinced. Queens, $1 each. Sample bees, 10c. Send for circular giving full description. 11tfdb J. A. ROE, UNION CITY, IND.

TO exchange.—For wax or cash, Standard L. or Heddon N. H. combs, at 5c each. Combs all worker, and in good order.

H. D. BURRELL,
10d Bangor, Mich.

ITALIAN QUEENS FREE

With supplies. Root's Dovetailed hives and all other supplies cheap. Write for particulars and save money. A. F. MCADAMS, Columbus Grove, O.

Please mention this paper. 9tfdb

TAKE NOTICE.

If you are looking for the bees that give the best profits, and most gentle in handling, try the Albinos. I also have the Golden Italian, and can furnish either variety. But if you ask for my preference I say Albino, and in my circular you can see what others say of them. Send for circular and see how cheap I sell them.

I also manufacture and deal in Hives, Sections, Foundation, Extractors, and other Apiarian Supplies.

S. VALENTINE,
Hagerstown, Md.

☞In responding to this advertisement mention GLEANINGS.

• DO YOU WANT •

Good, gentle, and prolific bees? Then get an Albino (or white-banded Italian) queen. Catalogue free.
5tfd A. L. KILDOW, Sheffield, Illinois.

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All advertisements intended for this department must not exceed five lines, and you must SAY you want your adv't in this department, or we will not be responsible for errors. You can have the notice as many lines as you please, but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged and they will be put with the regular advertisements. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED. To exchange one E. Setter bitch, five Scotch collie dogs thoroughbreds and pedigreed, 10 pairs White Fantail pigeons, for poultry, incubator, bees, brood foundation, or offers.
F. ANDREWS, Espanola, N. M.

WANTED—to exchange a Barnes combined foot-power saw, 8 vols. GLEANINGS, bees in Root's chaff hives, for saw-table, band or jig saw, for light power.
M. LUDTMAN, Hannibal, Mo.

WANTED. To trade a large lot of Heddon hives, nicely made and good as new; some with combs complete for honey, now or after crop of '92. Write for particulars. Address D. S. HALL,
2tfdb South Cabot, Vt.

TO exchange.—Bee-hives for beeswax. 9-12db
WM. IDEN, Etna Green, Ind.

WANTED.—A man to care for stock, bees, and fruit-trees, on shares, in the Indian Territory. For further information apply to
10-11-12d MR. L. C. AXTELL, Roseville, Ill.

WANTED.—To exchange one Joliet Safety bicycle, high grade, latest pattern, ball bearings, diamond frame, cushion tires, nearly new; one 49-inch Columbia, best high wheel made, good as new, very cheap; one Odell typewriter; 150 good second-hand hives for L. frame; one extractor for L. frame, for wax, honey, supplies, or offers. 10tfdb
J. A. GREEN, Dayton, Ill.

WANTED. To exchange chaff hives for bees and queens, or pure-bred poultry or eggs.
SAM'L BOYD, Fremont, Newaygo Co., Mich.

WILL exchange bees in 8-frame Langstroth hive, on wired combs of foundation, for S. C. Brown Leghorns; old or young birds taken.
Address BROWN LEGHORN,
11d P. O. Box 26, Browntown, Green Co., Wis.

Black and Hybrid Queens For Sale.

Mismated Italian queens bred from selected stock, 40c each; three for $1.00.
J. C. WHEELER, Plano, Ill.

75 black and hybrid queens by return mail. Blacks, 20c; hybrids, 25. J. H. SIPLE,
Phalia, Bolivar Co., Miss.

Hybrid queens for sale at 30c each, 4 for $1.00. I send out none but first-class queens, and guarantee safe arrival. PLINNY SHEPARDSON, Freeport, Wash.
11-12d

I have four German queens at 20c each, and seven hybrids at 30c each. H. G. QUIRIN,
Bellevue, Huron Co., Ohio.

Mismated queens, 50c each; hybrid queens, 3 for $1.25. Queens not one year old yet. Bee-men in the North and Northwest who need queens should send at once. DR. E. ANDERSON,
Comanche, Comanche Co., Texas.

We have several mismated Italian queens, all reared from best imported mothers at 30c each. The bees from these queens all show two yellow bands, and the most of them show three. The bees are gentle enough, and can not be excelled for gathering honey. Sent by mail upon receipt of price. Safe arrival guaranteed. 1c stamps taken.
CLEVELAND BROS., Decatur, Newton Co., Miss.

POLISHED

One-Piece Sections Our Specialty.

I can fill orders promptly for any width at $2.75 per M.; or $2.50 per M. in 5000 lots at factory at Wauzeka, Wis. Other supplies shipped from Capac, or Evart, Mich. Sections from these points 25 cts. extra per M. See ad. in May 15th issue.
8tfdb Address **B. WALKER**, Capac, Mich.
Please mention this paper.

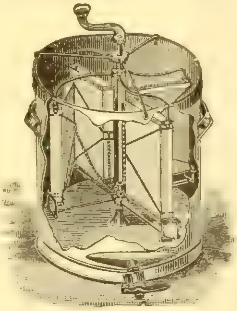
ELLISON'S FINE ITALIAN QUEENS and Bees.

PRICES FOR JUNE AND AFTER.

1 untested queen	$ .75
3 " "	2.00
1 tested queen	1.00
3 " "	4.00
Select Tested, each	3.00

Two-frame Nucleus with any queen, $1.50 each extra. Safe arrival guaranteed. **W. J. ELLISON,** 10d
Catchall, Sumter Co., S. C.
Please mention this paper. 11-12-1 -14

Stanley Automatic Reversing
HONEY-EXTRACTOR.



As announced in a late number of GLEANINGS, we have leased from G. W. Stanley the right to make his automatic extractor, and we bought from E. R. Newcomb his stock of materials and machines unsold. This stock consists of about twenty-five machines, two and four frame. To work it off quick, and give us a chance to put out machines of our own make, we offer these machines as long as they last, at one-fourth off old prices. We will sell the two-frame machines as they are for $9.00; the 4-frame for $15.00. They are crated ready for shipment, with crank direct on the center-shaft. We will attach our new horizontal gear, as shown on page 14 of our catalogue, for $3.00 each extra.

A. I. ROOT, Medina, Ohio.

PAINT FOR BEE-HIVES.

After much experimentation, and a careful study into the paint question, we offer a mixed

Paint Prepared Especially for Bee-Hives.
It will not Chalk or Flake off.

We guarantee it to be free from adulterants, such as whiting, barytes, lime, and other substitutes that do not add to the enduring qualities of the paint. Our paint is made of strictly pure lead, strictly pure zinc, and genuine French ocher of about equal proportions, mixed in pure linseed oil. It is generally recognized that there is no pigment more permanent than French ocher; and this, combined with zinc and lead, makes a most durable combination. The resultant tint is a pale straw color. Price: Pint, 35c; quart, 60c; half-gallon, $1.00; gallon, $1.75. Half a gallon will cover ten No. 1 Dovetailed hives two coats.

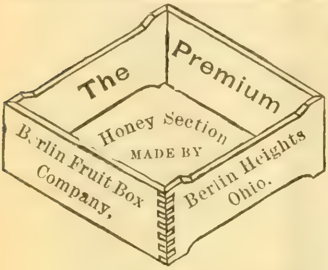
A. I. ROOT, Medina, O.

JENNIE ATCHLEY

Will send you either three or five banded Italian queens in June, July, and August, 75c each; $4.20 for 6, or $8.00 per doz. Safe arrival and satisfaction guaranteed.

1tfdb **Floyd, Hunt Co., Texas.**

Please mention this paper.



BEE SUPPLIES and all kinds of Berry-packages, boxes and baskets. We make a specialty of one-piece sections, and wood separators. Address

BERLIN FRUIT BOX CO.,
Berlin Heights
Erie Co.,
Ohio.

Please mention this paper

WANTED—LADY OR GENT IN EACH county to distribute and collect for Brabant's ladies' toilet cases; 238 articles, worth $1; will send sample and full particulars by mail for 35c in stamps; returnable if not satisfactory; territory free; $3 to $5 per day easily made. Address J. C. FRISBEE, general agent, 172 Maple St., Denver, Col.

Reference, A. I. Root, Medina, O.

☞ In responding to this advertisement mention GLEANINGS.

Bee-Hives and Sections

A specialty. Foundation, Smokers, etc., in stock. Send for new list, free.

4tfdb **W. D. SOPER, Jackson, Mich.**

Please mention this paper.

IMPORTED QUEENS.

In May and June, each..............................$2.00
In July and August, each.............................. 1.80
In September and October, each...................... 1.60

Money must be sent in advance. Safe arrival guaranteed. Queens that die en route, if returned in the letter, will be replaced by mail, postpaid. No order for less than 8 queens *by express* will be accepted.

CHAS. BIANCONCINI,
1-11d **Bologna, Italy.**

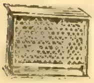
Please mention this paper. 7d

PATENT WIRED COMB FOUNDATION

HAS NO SAG IN BROOD-FRAMES.

THIN FLAT-BOTTOM FOUNDATION

Has No Fish-bone in Surplus Honey.



Being the cleanest is usually worked the quickest of any Foundation made.

J. VAN DEUSEN & SONS,
Sole Manufacturers, 5tfd
Sprout Brook, Montgomery Co., N. Y.

Please mention this paper.

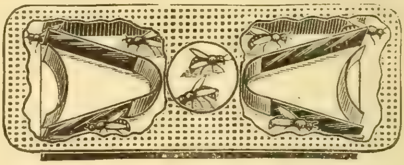
Italian Bees and Queens For Sale.

Untested queens, $1.00; tested, $1.50. Bees, $1.00 per lb. Colony, $5.00. Also barred Plymouth Rock eggs for sitting, $1.00 per 13.

7-16db MRS. A. A. SIMPSON, Swarts, Pa.

POULTRY. Choice Fowls and Eggs for sale at all times. Finely illustrated circular free. GEER BROS. St. Marys, Mo. 21tfdb

Hastings' Lightning Bee-Escape.



Send for sample of Hastings' "Lightning" Bee Escape, and you will be convinced that it is the best and most practical escape yet produced. It will clear the supers in a short space of time (2 to 4 hours), and it is impossible for the bees to clog the passage, as they can not return. Each escape guaranteed as represented. Price, by mail, each, $0.20; by mail, per doz., $2.25. Full directions with each escape. Electrotypes furnished free for dealers' catalogues. Write for discount. 7-12db

M. E. HASTINGS, New York Mills, Oneida Co., N. Y.

Please mention this paper

Cash for Beeswax!

Will pay 27c per lb. cash, or 30c in trade for any quantity of good, fair, average beeswax, delivered at our R. R. station. The same will be sold to those who wish to purchase, at 32c per lb., or 35c for *best selected wax*.

Unless you put your name *on the box*, and notify us by mail of amount sent, I can not hold myself responsible for mistakes. It will not pay as a general thing to send wax by *express*.

A. I. ROOT, Medina, Ohio

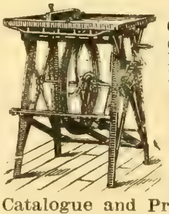
QUEENS FREE.

Italians, untested, 75c. Warranted, $1.00. Tested, $1.25. **One Choice Breeder Given Away** with each dozen. **Five-Banded Golden Queens, $1 to $2.** Satisfaction guaranteed.

F. C. MORROW, Wallaceburg, Ark.

Please mention this paper.

Barnes' Foot-Power Machinery.



Read what J. I. PARENT, of CHARLTON, N. Y., says—"We cut with one of your Combined Machines last winter 50 chaff hives with 7-inch cap, 100 honey-racks, 500 broad frames, 2,000 honey-boxes, and a great deal of other work. This winter we have doubled the amount of bee-hives, etc., to make, and we expect to do it all with this saw. It will do all you say it will." Catalogue and Price List free. Address W. F. & JOHN BARNES, 545 Ruby St., Rockford, Ill.

When more convenient, orders for Barnes' Foot-Power Machinery may be sent to me. A. I. ROOT.

23tfd

VANDERVORT COMB-FOUNDATION MILLS.

Send for samples and reduced price list.

1tfd **JNO. VANDERVORT, Laceyville, Pa.**

Please mention this paper.

TESTED ITALIAN QUEENS.

50 tested Italian queens for sale at $1.00 each, to be delivered June 1st to 15th, all raised last fall from an imported, and best select tested queens. Untested queens, July 15th and after, 70c each; 3 for $1.75; 6 or more, 50c each.

D. G. EDMISTON,
Adrian, Lenawee Co., Mich.

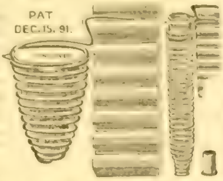
Foundation, Wholesale and Retail.

If you would like to see how nice foundation can be made, send for free samples. Special prices to dealers on Foundation and Sections, etc. Free price list of everything needed in the apiary. 6tfdb (Near Detroit.)

M. H. HUNT, Bell Branch, Mich.

CONTROL YOUR SWARMS!

N. D. WEST'S SPIRAL WIRE QUEEN CELL PROTECTORS AND CAGES.


PAT DEC. 15, 91.

N. D. West's Spiral Wire Queen-Cell Protectors will do it, and you can RE-QUEEN your apiary during the swarming season. Pronounced the Best by such men as CAPT. J. E. HETHERINGTON, Cherry Valley, N. Y.; P. H. ELWOOD, Starkville, N. Y., and others. Cell-Protectors, $3.00 per 100, or 12 for 60c, by mail. Cages, $5.00 per 100, or 12 for $1.00, by mail. Samples of both, with circular explaining, 25 cts. The cages are used for hatching queens in any hive, and are the Best Bee-Escape in use. Address 8-9-10d

N. D. WEST, Middleburgh, Schoharie Co., N. Y.

Please mention this paper

Muth's
Honey-Extractor.

Square Glass Honey-Jars,
Tin Buckets, Bee-hives.
Honey-Sections, &c., &c.
Perfection Cold-Blast Smokers.

APPLY TO
CHAS. F. MUTH & SON, Cincinnati, O.

Send 10-ct. stamp for "Practical Hints to Bee-keepers."
Please mention this paper.

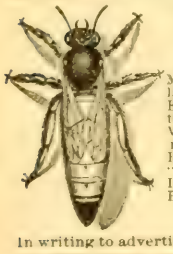
PRICE LIST OF BEE-HIVES.

	8-fr'me. 1½-st'y.	10-f'me. 1½-st'y.	8-fr'me. 2 st'y.	10-f'me. 2-st'y.
In lots of 5	72c	82c	87c	97c
In lots of 10	69	79	84	94
In lots of 25	60	70	75	85
In lots of 50	58	68	73	83
In lots of 100 ...	57	67	70	80

The reason we can sell so cheap is that lumber is cheaper in Minnesota than any other State in the U. S. The above prices are for Dovetailed, Simplicity, and three other styles. Send for catalogue.

F. C. ERKEL, LeSueur, Minn.

Please mention this paper.



WESTERN BEE-KEEPERS' SUPPLY HOUSE.

ROOT'S GOODS can be had at Des Moines, Iowa, at ROOT'S PRICES. The largest supply business in the West. Established 1885. Dovetailed Hives, Sections, Foundation, Extractors, Smokers, Veils, Crates, Feeders, Clover Seeds, etc. Imported Italian Queens, Queens and Bees. Sample copy of our Bee Journal, "THE WESTERN BEE-KEEPER," and LATEST CATALOGUE mailed FREE to Bee-keepers.

JOSEPH NYSEWANDER,
Des Moines, Iowa.

In writing to advertisers please mention this paper. 4tfdb

Engine and Boiler For Sale.

A six-horse upright engine and a ten-horse horizontal steel boiler. They are both complete and in fine condition; have been used only about six months. Boiler arched in. Both are W. B. Dunning's make, Geneva, N. Y.

Also an 18-inch Feed-Mill, French buhr, of A. W. Stevens' make, Auburn, N. Y. Sheller, Elevator, Shafting, Belting, Pulleys, and a fine lot of Simonds saws, cut-off and rip, from 5 inch up to 18. Two Vandervort Foundation Mills, 6 and 12 inch, steam melting-apparatus, etc. The whole outfit is nearly new, and in fine condition. Will be sold at a bargain. Write for particulars.

G. W. BALEY & SON,
9tfdb **Ovid, Seneca Co., N. Y.**

Please mention this paper.

Beautiful! Gentle! Prolific!

The Five-Banded Golden Italian Bees.

Send 5c for sample of bees and be convinced. Catalogue free. One queen, June or July, $1.00; six, $5.00.

J. F. MICHAEL,
8-13db *GERMAN, DARKE CO., OHIO.*

☞In responding to this advertisement mention GLEANINGS.

DR. J. W. CRENSHAW,
Versailles, - Kentucky,

Offers for Sale

Untested Italian Queens at $1.00 each through May and June; after, 75c each. Safe arrival guaranteed. Queens raised only from Imported mother. Drones only from selected and tested mothers.

Also CELERY PLANTS from July to September, at $2.00 per M. 7-18db

☞In responding to this advertisement mention GLEANINGS.

Good Queens Cheap.

300 tested Italian queens, raised last season, for sale at $1; $10 per doz. A few hybrids at 25c each. They will be shipped about June 15th to 25th, or later if desired. Have order booked now and send money when you want them. My bees have been ***BRED FOR BUSINESS***, and these are bargains. Nuclei and full colonies at very low rates.

J. A. GREEN, Dayton, Ill.

☞In responding to this advertisement mention GLEANINGS.

WHY, YES, EVERYBODY KNOWS that it pays to purchase their HONEY-COMB FOUNDATION at C. W. PHELPS & CO.'S Wholesale and Retail Foundation Factory. They sell heavy for Brood, 45c.; thin for Comb Honey, 55c. They deal in all kinds of Apiarian supplies. Their customers are always pleased, for their work is good and prices reasonable. Send for free samples Foundation and price-list of Bee supplies. Address C. W. PHELPS & CO., 74 Pettit street, Binghamton, N. Y.

TAKE NOTICE!

BEFORE placing your orders for SUPPLIES, write for prices on One-Piece Basswood Sections, Bee-Hives, Shipping-Crates, Frames, Foundation, Smokers, etc. PAGE & KEITH,
14tfdb New London, Wis.

Please mention this paper.

J. C. SAYLES,

HARTFORD, WIS.,

MANUFACTURES APIARIAN SUPPLIES OF EVERY DESCRIPTION. CATALOGUE FREE TO ALL. SEND YOUR ADDRESS.

3tfdb Please mention this paper.

Bee-Keepers' Supplies.

Hives, Honey-Cases, Sections, and Frames. We are the only concern in Southern California who make a

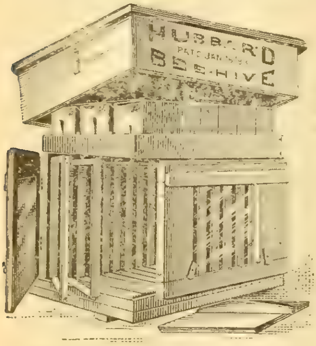
SPECIALTY OF BEE-KEEPERS' MATERIAL.

Agents for the white basswood 1-lb. sections. Send for catalogue and price list.

6-13db **Oceanside Mill Co., Oceanside, Cal.**

☞In responding to this advertisement mention GLEANINGS.

HUBBARD BEE HIVE AND SECTION PRESS.

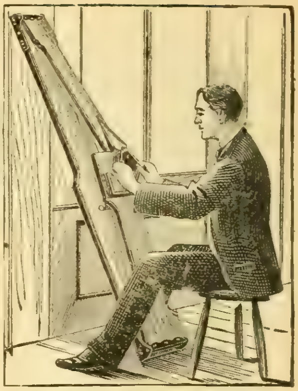


If you want to handle bees **easy** by sitting down to it, here is the hive. Frames fixed and variable distance combined No wrenching or prying or scraping of combs together. Many thousands in use giving excellent satisfaction.

Live Agents make Splendid Profits.

Large Circular of 20 pages free.

This **SECTION PRESS** (Pat'd is sold at **$2.50** (by the leading supply dealers Ask them for it or send to me. A boy can put together 800 to 1000 sections an hour and have them **true.** Bend section around, put in press. give a little push —'tis done Will last a life-time and is bound to please you.



Send for my Circular about Hive, Press, Foundation Fastener, Sections, Foundation Italian Queens, Extractors, Veils, Honey Crates and Cases, &c &c It will interest you. Or send **15 cents** for Practical Book for Beginners—**"First Principles in Bee Culture."** 11th thousand just issued

G. K. HUBBARD, 277 Harrison St., Fort Wayne, Ind.

3-10db ☞In responding to this advertisement mention GLEANINGS.

BEES **350 COLONIES OF BEES. 1,000,000 Sections. HIVES, Smokers, QUEENS, etc. Send for price list to E. T. FLANAGAN Box 783, Belleville, Illinois.**

SUPPLIES. Langstroth Bee-hives, and every thing needed in the bee yard; 30-page catalogue free. **"BUSY BEES,"** a book telling how to manage them, 10 cents in stamps. ***WALTER S. POUDER,*** 5-12db

175 E. WALNUT ST., INDIANAPOLIS, IND.

Please mention this paper.

PERSONS WANTING

APIARIAN SUPPLIES

Would do well to send to W. E. CLARK, Oriskany, Oneida Co., N. Y. Send for illustrated price list. Dealers should send for Dealers' list for Smokers. 6-12db

☞In responding to this advertisement mention GLEANINGS.

Down Go the Prices!

Must Be Sold!

100,000 No. 1 One-Piece Sections at $3.00 per M.
In 5000 Lots, - - - - - $2.80 per M.

Fifty Colonies of Italian Bees; 1 Colony, $6.00; 5 Colonies, $5.00 each. Tested Italian Queens in May, $1.50 each. Tested Italian queens, last year's raising, $1.00 each. Comb Foundation and a full line of Apiarian Sup-plies. Twenty-page price list free.

J. M. KINZIE,

9-12db **Rochester, Oakland Co., Mich.**

☞In responding to this advertisement mention GLEANINGS

PUNIC BEES UNTESTED QUEENS from the original and only imported stocks in the country; *$2.00 each.* Pratt's swarmer, by mail, 60c; 2 for $1.00. **E. L. PRATT,**
9-12db **Beverly, Mass.**

Please mention this paper.

My Catalogue of APIARIAN SUPPLIES for 1892 is free; My Pamphlet, "HOW I PRODUCE COMB HONEY," by Mail, 5 cts.

GEO. E. HILTON, Fremont, Mich.

Please mention GLEANINGS. 2-13db

SAVE MONEY.—Send to J. P. H. Brown, Augusta, Georgia, for his price list of supplies. Hives and foundation at wholesale rates. 4tfdb

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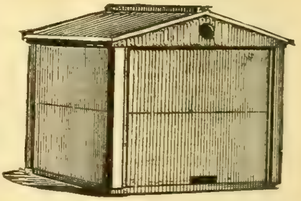
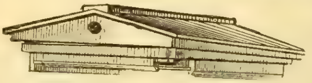
Great Crash in Prices!



From 10 to 25 % discount from former prices. My 40-page catalogue for 1892 gives reasons. I offer a new-style chaff hive at one-half the cost of other styles, and just as good. This hive can be taken apart almost instantly, and packed up in small space. It can be used on any hive (see cut). Don't fail to get my 32d annual price list. I mean business, and am bound to sell as good as the best, and at equally low prices.



Address ***WM. W. CARY,***
6tfdb *COLERAINE, MASS.*

Please mention this paper.

VIOLINS GUITARS MANDOLINS MUSICAL GOODS OF ALL KINDS. MURRAY & HEISS. CLEVELAND OHIO. CATALOGUE FREE

☞In responding to this advertisement mention GLEANINGS.

A POULTRY BOOK Called "The Chicken Business, and How to Make it Pay." Tells all about it. Finely illustrated, practical, and original. Price 50 cents, postpaid. An illustrated circular free, giving particulars about the book, and prices of pure-bred fowls and eggs for sale by the author. 4tfdb

H. B. GEER, Nashville, Tenn.

☞In responding to this advertisement mention GLEANINGS.

FOUNDATION. Brood, 38c; Thin, 48c; closing out, but small stock left. Also 20 acres fine land (see Ex. Col.) at a bargain, for cash.
10-11d H. L. GRAHAM, Grandview, Iowa.

☞In responding to this advertisement mention GLEANINGS.

PURE ITALIAN QUEENS.

Tested queens, $1.25; untested, 75c; safe arrival guaranteed. **MISSES S. & M. BARNES, Piketon, Ohio.**

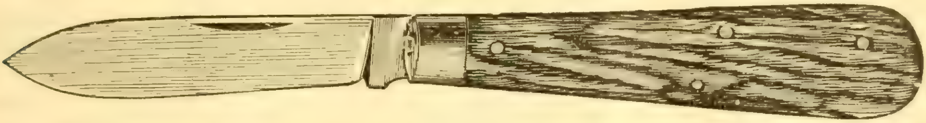
☞In responding to this advertisement mention GLEANINGS.

ITALIAN QUEENS. Choice tested, $1.50; untested, 90c. Satisfaction guaranteed.
9-11d S. P. RODDY & BRO., Mt. St. Mary's, Md.

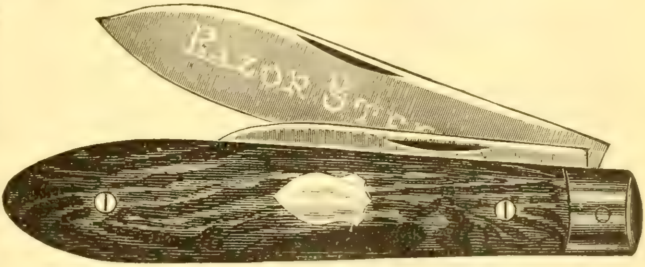
HAND-FORGED AMERICAN POCKET-KNIVES.

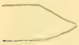
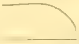
SOME CHOICE GOODS AT A BARGAIN.

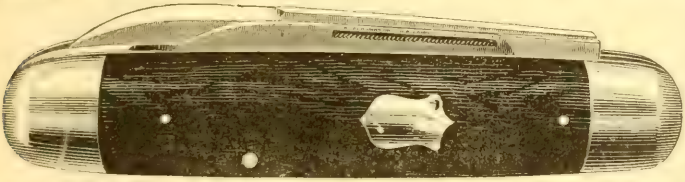
Up to the fall of 1891 the American Knife Co., of Thomaston, Conn., had for twenty-five years been making pocket cutlery that has been the standard of excellence, and not surpassed by any made in America. By unfortunate circumstances they had to make an assignment. We have recently purchased one hundred and forty dozen of four or five styles, at prices from 10 to 30 per cent less than the same quality of goods can be bought to-day in any quantity at wholesale jobbers' prices We propose to give our readers and their friends the benefit of this low purchase. This list includes our special bargains, though we have many other styles given in our price list.



Ten-cent American Knife, exact size of cut, either sharp or round pointed blades. This has been one of our leaders for many years, and is still as good as ever. Blades are best steel, and the knives are well finished. Price 10c each; by mail, 12c; or given postpaid for one subscription, either new or renewal. One dozen by mail, postpaid for $1.25, or $1.10 sent at your own expense, with other goods.



Our 30-cent Big-bargain Knife, 2 blades. We have no cut that accurately represents this knife, but we consider it a big bargain. It is the same length as the cut, but thicker. It is brass lined, and German-silver tipped; has best hand-forged razor-steel blades, which we can furnish  either spear point or clip point.  Handles are either ebony or cocoa; 40 or 50 cents would be the usual price for such a knife; but by taking a quantity we are enabled to make the price 30c; 6 for $1.50. Postage, 4c each extra. Given free for **one new** subscription with $1.00, and 4c for postage.

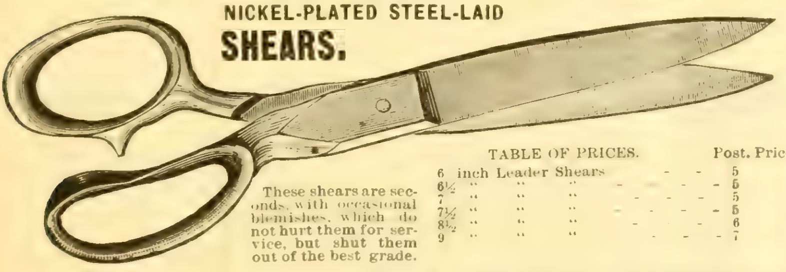


Excelsior Knife, No. 46; price 40c; 6 for $2.00. By mail, 5c each extra. This is exact size of cut, but the shield inlaid in the handle is a little different. It has two blades, as shown, is brass-lined with German-silver tips, cocoa handle. The same pattern of knife is usually retailed for 60 or 75 cents, and could not be sold for less than 50 cents if we had to pay the prices asked by manufacturers at present. We got 57 dozen of these, so we have enough to treat a good many of our readers with one of the best bargains it is often your good fortune to meet. Price 40c each; 3 for $1.10; 6 for $2.00. By mail, 5c each extra. Given free for one new subscription with your own renewal, and $2.00, with 5c to cover postage.

Diamond Knife, No. 2255, price 50c; 6 for $2.50. This is the same knife we have been selling for a number of years. It is the same size as No. 46 above, but the handle is diamond shape, large in the middle, gracefully curving to the end. It has two hand-forged razor-steel blades; is brass-lined, with German-silver tips and ebony handle; a splendid knife for 50c; 3 for $1.35, or 6 for $2.50. By mail, 5c each extra. Given for one new subscription, with your own renewal and $2.00, with 5c for postage.

Ladies' Penknife, or Queen-cell Knife. Price 15c. By mail, 17c; 6 for 75c, or 85 by mail. This is 3 inches long, closed; 4⅝ open, with a long slender blade 3/16 wide, hand-forged from razor steel; brass lined and ebony handle; a wonderful bargain for the price Given free for a subscription to GLEANINGS, either new or renewal.

NICKEL-PLATED STEEL-LAID
SHEARS.



Less than half usual prices. We bought 350 dozen in one lot to make it possible to offer these prices.

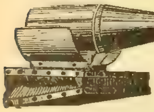
These shears are seconds, with occasional blemishes, which do not hurt them for service, but shut them out of the best grade.

TABLE OF PRICES.

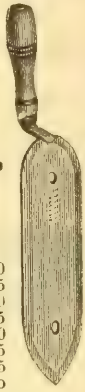
		Post.	Price each.	½ doz.	3 doz.
6	inch Leader Shears	5	.20	$1.10	$ 6.00
6½	" " "	5	.25	1.25	7.00
7	" " "	5	.30	1.40	8.00
7½	" " "	5	.35	1.60	9.00
8½	" " "	6	.45	2.00	11.00
9	" " "	7	.50	2.25	12.00

A. I. ROOT, Medina, Ohio.

✣BEST ON EARTH✣



ELEVEN YEARS WITHOUT A PARALLEL, AND THE STANDARD IN EVERY CIVILIZED COUNTRY.



Bingham & Hetherington

Patent Uncapping-Knife,

Standard Size.

Bingham's Patent Smokers,

Six Sizes and Prices.

Doctor Smoker,	3½	in.,	postpaid ..	$2.00
Conqueror "	3	"	" .	1 75
Large "	2½	"	" ...	1 50
Extra (wide shield)	2	"	" ..	1 25
Plain (narrow ")	2	"	" ..	1 00
Little Wonder,	1¾	"	" ..	65
Uncapping Knife.....			....	1 15

Sent promptly on receipt of price. To sell again, send for dozen and half-dozen rates.

Milledgeville, Ill, March 8, 1890.

SIRS:—Smokers received to-day, and count correctly. Am ready for orders. If others feel as I do your trade will boom. Truly, F. A. SNELL.

Vermillion, S. Dak., Feb. 17, 1890.

SIRS:—I consider your smokers the best made for any purpose. I have had 15 years' experience with 300 or 400 swarms of bees, and know whereof I speak. Very truly, R. A. MORGAN.

Sarahsville, Ohio, March 12, 1890.

SIRS:—The smoker I have has done good service since 1883. Yours truly, DANIEL BROTHERS

Send for descriptive circular and testimonials to

7tfdb **BINGHAM & HETHERINGTON, Abronia, Mich.**

☞In responding to this advertisement mention GLEANINGS

I am Pushing Ahead!

And am so far in the lead that I challenge any one to show up superior bees to my best

Five-Banded Golden Italians.

Large, beautiful, gentle, and good honey-gatherers; the results of 10 years' careful breeding. Try them. Satisfaction guaranteed. Queens in May, $1.25 each; 6 for $6. After June 1, $1 each; 6 for $5. For full particulars, send for descriptive circular.

CHAS. D. DUVALL, Spencerville, Md. 7tfdb

FOR CASH.

Pure Italian queens in June and after, one untested, 80c; ½ dozen, $4.50. Tested queens, $1.50 each. Guarantee safe arrival. Address 10d

D. E. ALDERMAN, CLINTON, SAMPSON CO., N. C.

SECTIONS.

Snow-white Sections,
Cream Sections,
No. 2 Sections.
Finest goods made.
We have a large stock on hand,
and can fill small and large
orders promptly.

9tfdb *G. B. LEWIS CO.,*
Watertown, Wis.

Please mention this paper.

ITALIAN QUEENS.

Untested, 85 cents. Tested, $1.25. Special terms for large orders.

6tfdb **H. FITZ HART,**
Avery, Iberia Parish, La.

☞Please mention GLEANINGS.

DOVETAILED HIVES, SIMPLICITY HIVES,

SECTIONS, EXTRACTORS, ETC.
A FULL LINE OF
BEE-KEEPERS' SUPPLIES.
60-PAGE CATALOGUE. 1tfdb

J. M. JENKINS, WETUMPKA, ALABAMA.

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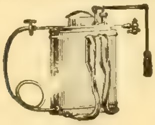


SPRAY YOUR FRUIT TREES AND VINES

Wormy Fruit and Leaf Blight of Apples, Pears, Cherries, Grape and Potato Rot, Plum Curculia prevented by using **EXCELSIOR SPRAYING OUTFITS.**

PERFECT FRUIT ALWAYS SELLS AT GOOD PRICES. Catalogue showing all injurious insects to Fruits mailed free. **Large stock of Fruit Trees, Vines, and Berry Plants at Bottom Prices.** Address **WM. STAHL, Quincy, Ills.**

24-10db ☞In respon [illegible] mention GLEANINGS.

ROOT'S GOODS FOR THE EAST.

Bee-Keepers of the East should

Bear In Mind that we have established at Syracuse an **Eastern Branch**

where our Bee-keepers' Supplies are kept for sale, and prompt shipment. You can save time and freight by ordering from our Eastern Branch. We have engaged Mr. F. A. Salisbury to take charge of this business, and he will treat you well. He will be pleased to send you a list of goods kept in stock.

Address all orders,

EASTERN BRANCH, F. A. SALISBURY, Agent, Syracuse, N. Y.

TESTED ITALIAN QUEENS, 80c

IN JULY AND AUGUST. In June, $1.00 each. Mismated queens, 40 cents.

J. C. WHEELER PLANO, ILL.

Yellow, Extra, Excellent

B Italian Queens for sale in June at Chenango Valley Apiary **E** Tested, $1.50 Untested, $1 Order early Send for list **E** Two-frame Nucleus with Queen, $2.00. Don't pass by **S**

MRS. OLIVER COLE, Sherburne, Chenango Co., N. Y.

9-14db Please mention this paper.

BEE-HIVES, Dovetailed or Otherwise.

All Kinds of Bee Supplies.

Write for free catalogue. **W. H. PUTNAM,**

8-13db **River Falls, Pierce Co., Wis.**

☞In responding to this advertisement mention GLEANINGS.

4 BANDED ITALIAN BEES. Tested, $1.00; Untested, 60c; Selected tested, $1.25; one 2-frame nucleus, tested queen, $2.00; untested, $1.50. Safe arrival guaranteed.

8-12db **STEWART BROS., Sparta, Tenn.**

LEATHER-COLORED ITALIAN QUEENS.

One untested, $1.00; six, $5.50; twelve, $10.00; one tested, $1.50; six, $8.00; twelve, $15.00; selected for breeding *early*, each, $2.50; one year old tested, *in June only*, $1.25; six, $7.00; twelve, $13.00. Two-year-old queens, each, 50c. Descriptive catalogue mailed free on application.

8-13db **A. E. MANUM, Bristol, Vt.**

☞In responding to this advertisement mention GLEANINGS.

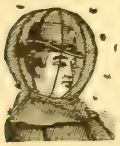
I DO NOT ADVERTISE

a specialty, but every thing found in APIARY. Beeswax wanted. **C. E. LUKENS,**

6-7d **19 N. 2d St., Philadelphia, Pa.**

☞In responding to this advertisement mention GLEANINGS.

GLOBE BEE-VEIL



By Mail for $1.00.

A center rivet holds 5 spring-steel cross-bars like a globe to support the bobinet Veil. These button to a neat brass neck-band, holding it firmly. It is easily put together; no trouble to put on, or take off. An absolute protection against any insect that flies. Will go over any ordinary sized hat; can be worn in bed without discomfort; fits any head; does not obstruct the vision; folds compactly, and can be carried in the pocket; in short, it is invaluable to any one whom flies bother, mosquitos bite, or bees sting.

Extra Nets, 50 Cents Each.

THOMAS G. NEWMAN & SON,
199 Randolph St., Chicago, Ill:

Bee - Keepers' ❋ Supplies.

We are prepared to furnish bee-keepers with supplies promptly and at lowest rates. Estimates gladly furnished, and correspondence solicited. Our goods are all first-class in quality and workmanship. *Catalogue sent free.* Reference, First National Bank, Sterling, Ill. Address 1-24db

WM. McCUNE & CO.,
Sterling, Illinois.

☞In responding to this advertisement mention GLEANINGS

Wholesale and Retail Manufacturer and Dealer in BEE-KEEPERS' SUPPLIES.

ONE-PIECE SECTIONS A SPECIALTY, AS GOOD AS THE BEST.

Send for catalogue. ***W. E. SMITH,***

5tfdb *Successor to Smith & Smith,*
KENTON, HARDIN CO., OHIO.

In writing advertisers please mention this paper.

"AND DON'T YOU FORGET IT."

I TELL you what, Jones, **Levering Bros.** sell the best goods and at the lowest price of any one I've struck yet. The largest and best equipped

Bee - Hive Factory

in the West. The Dovetailed Hive and New Hoffman self-spacing Frame a specialty. Every thing used by practical bee-keepers at wholesale and retail. Send for their free Illustrated Price List, and save money. Supply Dealers, send for their Wholesale List. Address

LEVERING BROS.,
6-15db **Wiota, Cass Co., Iowa.**

Please mention this paper.

BEE-HIVES, SECTIONS, ETC.

We make the best goods and sell them cheap.
Our Sections are far the best on the market.
Our Works turn out the most goods of any factory in the world.
Our goods are known as the best throughout the United States and Europe.
Write for free, illustrated catalogue and price list.

G. B. LEWIS & CO., WATERTOWN, WIS.

☞In responding to this advertisement mention GLEANINGS.

IF YOU WANT BEES

That will just "roll" in the honey, try **Moore's Strain of Italians**, the result of 13 years' careful breeding. Prices in June: Warranted queens, $1.00 each; 3 for $2.50. Strong 3-frame nucleus, with warranted queen, $3.00. Safe arrival and satisfaction guaranteed. Those who have never dealt with me I refer to A. I. Root, who has purchased of me, during past 12 years, 582 queens. Circulars free.

J. P. MOORE, Morgan, Pendleton, Co., Ky.
11-12d Money-order office, Falmouth, Ky.

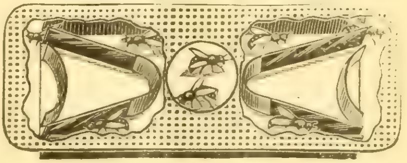
In writing to advertisers please mention this paper.

Sections at $3 per 1000. These are perfectly smooth, and first-class. Brood foundation 45 cts. per lb. All supplies equally low. Goods shipped direct from New York city. 1-18dt.

I. J. STRINGHAM,
92 Barclay St., N. Y.

☞In responding to this advertisement mention GLEANINGS.

Hastings' Lightning Bee-Escape.



Send for sample of Hastings' "Lightning" Bee Escape, and you will be convinced that it is the best and most practical escape yet produced. It will clear the supers in a short space of time (2 to 4 hours), and it is impossible for the bees to clog the passage, as they can not return. Each escape guaranteed as represented. Price, by mail, each, $0.20; by mail, per doz., $2.25. Full directions with each escape. Electrotypes furnished free for dealers' catalogues. Write for discount. 7-12db

M. E. HASTINGS, New York Mills, Oneida Co., N. Y.

Please mention this paper

Italian Bees and Queens For Sale.

Untested queens, $1.00; tested, $1.50. Bees, $1.00 per lb. Colony, $5.00. Also barred Plymouth Rock eggs for sitting, $1.00 per 13.

7-16db MRS. A. A. SIMPSON, Swarts, Pa.

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CONVENTION NOTICES.

The Carolina Bee-keepers' Association will meet at the Court-house in Charlotte, N. C., July 21. A. L. BEACH, Sec.
Steel Creek, N. C.

SPECIAL NOTICES.

We have just been advised of the shipment of another importation of queens, which are now on the way, and we expect them to be here now within two or three days, or, perhaps, by the time this journal reaches its readers. These queens are all young and select. The price, during June, will be $6.00; next month, $5.00 for the best. For the second grade, if there are any, $5.00 and $4.00 respectively.

MASON JARS ADVANCING.

We can not receive any more orders for Mason jars at the prices in last number of GLEANINGS, as the market is active and prices advancing. For the next two weeks we venture to quote the following prices; but we can not guarantee these prices: 1-pint Mason jars, per box of 8 doz., $6.00; 1-quart Mason jars, per box of 8 doz., $6.40; 2-quart Mason jars, per box of 6 doz., $6.25; f. o. b. Pittsburg, Pa.

LAWN-MOWERS.

Now is the time for trimming the lawns and bee-yards to make them neat and attractive. You can not do this successfully without a good lawn-mower. We are prepared to supply you with one of the best mowers on the market at prices lower than former years. We sell the Globe in five sizes, as follows: 10 in., $4.65; 12 in., $5.00; 14 in., $5.35; 16 in., $5.65; 18 in., $6.00. We have also the Young America, a single driver, in two sizes, as follows: 10 in., only $3.50; 12 in., $4.20. In lots of 2 at a time, 3 per cent off; 3 together, 5 per cent off; 5 or more in one order, 10 per cent off. The quantity may be made up of assorted sizes, and both kinds if desired.

BUSINESS AT THIS DATE.

The long-continued wet weather has had a very depressing effect on bee-keepers in all the regions affected. Reports of many losses of bees have been received, chiefly from spring dwindling; and many of those remaining are in poor condition for a honey-flow, of which we have a pretty good prospect if the present fair weather continues. Owing to the many losses, and gloomy outlook, the trade in supplies has fallen off very materially; and whereas, two years ago we were running night and day trying to get orders filled, we now have time on our hands, and can serve you the same day your order comes. If you get in a pinch, and want something in a hurry, don't be deterred from ordering because you think there is a possibility of delay in filling your order now; but remember, we are only waiting an opportunity to serve you.

JAPANESE BUCKWHEAT ADVANCED.

Our stock of nearly 200 bushels of Japanese buckwheat was gone by the 10th; and to meet the demand we have been obliged to order over 100 bushels already from New York, at a cost of $1.00 per bushel there, and 20c each extra for bags. Of course, we can not afford to pay this price and sell it at the price quoted in our catalogue. Since June 10th we have been charging on all orders the following price, which barely covers cost: 1 peck, 40c; ½ bushel, 75c; 1 bushel, $1.25; 2 bushels, $2.40; 10 bushels, $11.50. If any of our readers have any Japanese buckwheat seed for sale, or know of any in their vicinity that they can guarantee to be good seed, true to name, write at once when you see this, stating the number of bushels (50 lbs. to the bushel), and send us a sample in the same mail. The chances are that we can give you orders for it by return mail. If the quality is not equal to that we get from New York, of course we could not pay the same price. If you wish to set a price you will take, name it in your letter to us, advising us of the amount you have to sell. There is at least a month yet when the seed can be sown and mature ripe seed before frost; and, owing to the late planting time for other crops, there will be a good demand for buckwheat.

NEW HONEY-JARS.

We have added to our stock of glass jars for extracted honey the one shown adjoining. It is straight up and down, with a tin screw top, with opening in the top nearly the full size of jar, making it easy to take out candied honey. The top edge is ground so that they can be sealed with a rubber band if desired. There are six sizes made, but we keep only two—No. 200, holding 1 lb. of honey, as shown, and No. 500, same diameter, twice as long, holding 2 lbs. Prices, without rubber rings, will be as follows: No. 200, holding 1-lb., 7c each; 60c for 10; $7.00 per bbl. of 12 doz. No. 500, holding 2 lbs., 12c each; $1.00 for 10; $6.50 per bbl. of 7 doz.

There are two sizes smaller, and two between, which we can furnish direct from Pittsburg at proportionate prices if any desire them. Either of above sizes can be furnished from here, or in barrel lots from Pittsburg.

SECOND-HAND MACHINERY.

During the past few months we have bought up several outfits of machinery for making bee-keepers' supplies; and if any of our readers or their friends contemplate putting in machinery we are prepared to fit you out from cellar to garret with everything you need in engines, boilers, machinery, shafting, pulleys, hangers, belting, saws, etc. The following is a partial list of the second-hand machinery we have to sell. If you desire further particulars we shall be pleased to hear from you.

One 20-H. P. Fishkill horizontal engine, rebuilt, and as good as new; would cost new, $400; will sell for $200.

One 5-H. P. horizontal engine and boiler, with engine mounted on boiler, in good running order. Price $150.

One 24-inch two-roll Fay sandpaper machine, nearly new. Price, new, $450; will sell for $175.

One 9-inch cigar-box planer, nearly new; has been used very little. Price, new, $65; will sell for $40.

One V-groove section machine, nearly new. This is our make, old style, with screw-feed; sold some years ago for $75; will sell now for $40.

One cutter-head, with table complete, for cutting entrances to sections. Old style, but nearly new, and in good repair. Price, new, $25.00; will sell for $15.00.

One iron-frame hand-jointer; well worth $25; will sell for $15.

One double-head tenoning-machine, especially arranged for making the combined rabbet and miter joint of the Simplicity hive, but can be used for making sash and window-screen frames, etc. We could not build such a machine, and sell it for less than $150; we will sell this for $60.

One iron-planer, 16x36-inch bed, automatic reversing device to run back and forth. It cost us, second-hand, several years ago, $150; is about as good now as then, but we had to have a larger size. We offer this for $50.

Two extra large saw-tables for general use, to cut off or rip, with counter-shaft attached to frame; worth new, $50 each; will sell for $20 each.

Two four-piece section-machines, as good as new. They cost new, $85 each; we will sell them for $30 each.

Also a large lot of shafting, pulleys, hangers, belting, and saws, too numerous to mention here.

MURDER YOURSELF

No longer, but try some of these traps.

One of either kind, as illustrated in GLEANINGS, by mail	60
One of each kind, by mail.	1 00
One-half dozen, either kind, by express	2 75
One dozen, either kind, by express	5 00

Money-order office, Middleburgh, N. Y. Reference, Middleburgh National Bank.

W. DIBBLE,
MIDDLEBURGH, SCHO. CO., N. Y.

☞In responding to this advertisement mention GLEANINGS.

Bingham's Perfect Safety
SMOKER.
Pat. 1878; Re-issued 1882. Pat. 1892

No more soiled sections, burned fingers, or burned Apiary. Any large advertiser of Bingham Smokers will send you a Perfect Doctor, Perfect Conqueror, or Perfect Large Smoker, if you will send to him 25 cts. more than the regular mail price, and ask for either of the three sizes mentioned.

Bingham & Hetherington, Abronia, Mich.

☞In responding to this advertisement mention GLEANINGS.

HAYES' IMPROVED
FOUNDATION FASTENER.

FASTENS Full Sheets or Starters.—Instructions sent out with every machine. Satisfaction guaranteed. Price, without lamp, $1.75; with lamp, $2.00. Manufactured by permission. See illustration in GLEANINGS for April 1st, 1891, page 268.
12d E. J. WEAKLY, Washington, Kan.

☞In responding to this advertisement mention GLEANINGS.

25 PURE TESTED Young Italian Queens, 80c each; $9.00 per doz. A. B. MAN,
12d Wallaceburg, Ark.

WANT TO BUY 100 lbs. of bees, and 100 queens. Bee-men, give prices. 12d
J. B. MURRAY, Ada, Hardin Co., Ohio.

5 CTS. will get a sample cage of my 5-banded bees; 1 untested 3-banded, 60c; six for $3.00; 1 5-banded, 75c; six for $4.25. Full colonies, nuclei, and supplies cheap; catalogue free.
12tfdb CHAS. H. THIES, Steeleville, Ill.
Please mention this paper.

90 STANDS OF ITALIAN BEES for sale, in new L. hives, on wired frames, foundation pressed on. Queens of 1891; some are Doolittle's strain. Bees are very strong. Price $5 00; bees must be sold. Address, APIARIST,
12d Browntown, Green Co., Wis.

A Four-Color Label for Only 75 Cts. Per Thousand.

Just think of it! we can furnish you a very neat *four-color* label, with your name and address, with the choice of having either "comb" or "extracted" before the word "honey," for only 75 cts. per thousand; 50 cts. per 500, or 30 cts. for 250, postpaid. The size of the label is 2⅜x1 inch—just right to go round the neck of a bottle, to put on a section, or to adorn the front of a honey-tumbler. Send for our special label catalogue for samples of this and many other pretty designs in label work.

A. I. ROOT, Medina, O.

HONEY COLUMN.

CITY MARKETS.

ST. LOUIS.—*Honey.*—At present there is not any demand for honey to speak of. Choice white-clover, nominal, 15; good, 12½@13; buckwheat and wild flower, 10@11; dark and broken, 5@6; extracted, white-clover, 5½@6½; southern, 4½@5¼. *Beeswax*, prime, 26.
W. B. WESTCOTT,
June 10. St. Louis, Mo.

MINNEAPOLIS.—*Honey.*—Market is quite active. Fancy white selling at 16@17; dark honey 13@14. Strained honey slow at 7. J. A. SHEA & CO.,
June 11. 14 & 16 Hennepin Ave., Minneapolis, Minn.

KANSAS CITY.—*Honey.*—We quote: 1-lb., No. 1, white, 1-lb. comb, 10@12; No. 2, 8@10; No. 1 amber, 8@10. Extracted, white, 6½@7; amber, 5@6. Comb honey will have to sell faster to get out of the way of the new crop. *Beeswax*, 22@25.
CLEMONS, MASON & CO.,
June 10. Kansas City, Mo.

NEW YORK.—*Honey.*—Comb-honey market is about at a standstill, little or no demand. There is a small demand for extracted, selling at 65@75 per gal. for Southern; 6½@7 for clover and basswood; buckwheat, 5@5½. *Beeswax*, Southern is coming in now, making the market a little easier, quoting 25@27, with a small advance for extra selected.
June 9. CHAS. ISRAEL & BRO.,
110 Hudson St., New York.

ALBANY.—*Honey.*—As reported in last issue, we closed out all of our stock of comb honey; but some other dealers, unable to sell theirs, have turned over their remaining stock to us; but it is selling very slow, and prices are nominal. Extracted, in moderate demand, at 6@8. *Beeswax*, more plentiful, and price lower, 24@25.
CHAS. MCCULLOCH & CO.,
June 9. Albany, N. Y.

CINCINNATI.—*Honey.*—Demand is good for extracted honey, and very slow for comb. Extracted brings 5@8 on arrival, while prices of comb honey are nominal at 11@15 for best white in a jobbing way. *Beeswax*, in fair demand at 25@27 for good to choice yellow on arrival. CHAS. F. MUTH & SON,
June 8. Cincinnati, Ohio.

ST. LOUIS.—*Honey.*—No changes to note. Receipts light; demand fair. *Beeswax*, prime, 26.
June 10. D. G. TUTT GRO. CO.,
St. Louis, Mo.

DETROIT.—*Honey.*—Very little honey to quote. No first class. Market will be awaiting new crop. Extracted, 7@8. *Beeswax*, 26@27.
June 8. M. H. HUNT,
Bell Branch, Mich.

CHICAGO.—*Honey.*—Selling slowly, trade being in strawberries and other small fruit. There is not any fine comb on the market; it would bring 15@16. Extracted, 6@7@8, according to quality.
Beeswax, 27. R. A. BURNETT,
June 9. 161 So. Water St., Chicago, Ill.

PORTLAND.—*Honey.*—Comb, 1-lb. fancy, 17½; 1-lb. choice, 15@16; extracted, white, 7½. *Beeswax*, none here. LEVY, SPIEGL & CO.,
May 28. Portland, Or.

KANSAS CITY.—*Honey.*—All the old honey cleared up; look for the new crop the first of July.
June 10. HAMBLIN & BEARSS,
514 Walnut St., Kansas City, Mo.

SAN FRANCISCO.—*Honey.*—Comb easy, but choice stock not plentiful. Extracted in fair demand, and rather scarce. *Beeswax*, quiet but scarce.
June 9. SCHACHT, LEMCKE & STEINER,
San Francisco, Cal.

BOSTON.—*Honey.*—We quote you our market on 1-lb. white honey, 13@14. Extracted, 7@8; demand very light. *Beeswax*, none.
June 9. BLAKE & RIPLEY,
Boston, Mass.

The Bee-Keepers' REVIEW For 1892 and a Fine, Young, Laying Italian **QUEEN** for $1.50. The Review Alone, $1.00. The Queen Alone, 75 Cts. For $1.75, the Review, the Queen, and the 50 ct. Book, "Advanced Bee Culture," will be sent. W. Z. Hutchinson, Flint, Mich.

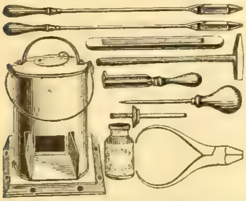
P. S.—If not acquainted with the REVIEW, send ten cents for three late but different issues.

DR. J. W. CRENSHAW, Versailles, - Kentucky,

Offers for Sale

Untested Italian Queens at $1.00 each through May and June; after, 75c each. Safe arrival guaranteed. Queens raised only from Imported mother. Drones only from selected and tested mothers.
Also CELERY PLANTS from July to September, at $2.00 per M. 7-18db

☞In responding to this advertisement mention GLEANINGS.



OATMAN'S
SOLDERING AND REPAIR KIT

Consists of fire-pot, soldering-irons, solder, and soldering-fluid, with tools compl'te as shown in cut, with directions for soldering different metals, and how to keep your soldering-irons in shape. Whole kit, boxed, 12 lbs. Shipped on receipt of $2 00. Agents wanted.

O. & L. OATMAN,
8-7db **Medina, Ohio.**

☞In responding to this advertisement mention GLEANINGS.

YOUNG QUEENS READY

to mail to any one, anywhere at any time, in the U. S. or Canada. **ITALIANS.** untested, $1.00; 3, $2.75; 6, $5.00; per dozen, $9.00. Tested, reared last season, $2.00; 3 for $5.00. Two-frame nucleus, with any queen, $1.25 extra. Safe arrival guaranteed. Send for circular of **Dovetailed Hives,** Smokers, Foundation, **Drones,** etc. Money-order office, Clifton. **COLWICK & COLWICK, NORSE, TEX.**

☞In responding to this advertisement mention GLEANINGS.

50 CENTS WILL BUY A GOOD 2-STORY L. Hive. $1.00 Will Buy 100 L. Brood Frames. $1.00 Will Buy a Nice Golden Italian Queen. Please Write for our Circular Before you Buy your Supplies.

W. H. BRIGHT, Mazeppa, Minn.
7-12db Please mention this paper.

BEE SUPPLIES RETAIL —AND— WHOLESALE.

Everything used in the **Apiary.** Greatest variety and **largest** stock in the West. New catalog, **54** illustrated pages, free to bee-keepers. **E. KRETCHMER, RED OAK, IOWA.**

In writing advertisers please mention this paper.

CARNIOLAN BEES AND QUEENS. They beat them all. Never have dysentery. All queens reared from select imported mothers. Untested, 50c; 12 for $5.00. Tested, $1.00; 12 for $10.00. Select tested, $1.50. Descriptive circular free. **A. L. LINDLEY, Jordan, Ind.**
8-13db

IF YOU WANT GOLD.

Send for one of my golden Italian queens, raised from the best 5-banded stock, that has been awarded ***First Premium*** at the ***Detroit*** Exposition the last two years. Untested queens, $1.00 each; 6 for $5.00. Tested queens, $2.00 each. Breeding queens, $5.00 each.

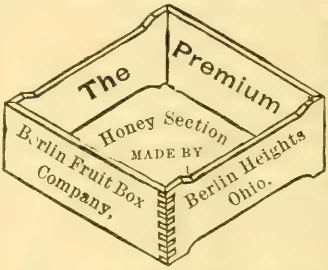
ELMER HUTCHINSON,
11tfd ***VASSAR, TUSCOLA CO., MICHIGAN.***
Please mention this paper.

QUEENS FREE!

Italians, untested, 75 cts. Warranted, $1.00. Tested, $1.25. **One Choice Breeder Given Away** with each dozen. **Five-Banded Golden Queens, $1 to $2.** Write for lower prices. Satisfaction guaranteed. 10tfdb
F. C. MORROW, Wallaceburg, Ark.
Please mention this paper.

JENNIE ATCHLEY

Will send you either three or five banded Italian queens in June, July, and August, 75c each; $4.20 for 6, or $8.00 per doz. Safe arrival and satisfaction guaranteed.
1tfdb **Floyd, Hunt Co., Texas.**
Please mention this paper.



BEE SUPPLIES and all kinds of Berry-packages, boxes and baskets. We make a specialty of one-piece sections, and wood separators. Address
BERLIN FRUIT BOX CO.,
Berlin Heights
Erie Co.,
Ohio.

Please mention this paper

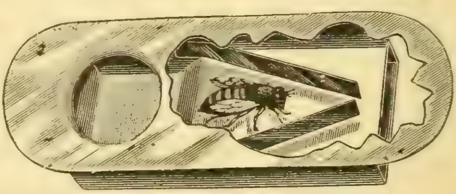
75c. Golden Queens by Return Mail. 75c.

My Golden Italians are good workers, and gentle. Queens are carefully bred from best stock. Three queens, $2.00; six for $3.50; dozen, $6.00. Safe arrival and satisfaction guaranteed. Money order office, Daytona, Fla. **JOHN B. CASE.**
11tfdb **Port Orange, Vol. Co., Fla.**

DID YOU EVER SEE

One of our 5-banded red-clover queens? 100 lbs. of clover honey in poor seasons. Send for descriptive circular free. LEININGER BROS.,
7tfdb Ft. Jennings, Ohio.

Porter's Spring Bee-Escape.



We guarantee it to be the best escape known, and far superior to all others. If, on trial of from one to a dozen, you do not find them so, or if they do not prove satisfactory in every way, return them by mail within 90 days after receipt, and we will refund your money.

PRICES:—Each, by mail, postpaid, with full directions, 20c; per dozen, $2.25. Send for circular and testimonials. Supply dealers, send for wholesale prices.

10tfdb ***R. & E. C. PORTER, LEWISTOWN, ILL.***

☞In responding to this advertisement mention GLEANINGS

GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS.

ILLUSTRATED SEMI-MONTHLY

PUBLISHED BY A. I. ROOT.

$1.00 PER YEAR MEDINA OHIO

Vol. XX. JUNE 15, 1892. No. 12.

STRAY STRAWS

FROM DR. C. C. MILLER.

OH FOR some weather!

THE TOPS OF HILLS around Marengo are all swampy nowadays.

I ONCE TRIED a quilt covered with tallow. The bees gnawed it all the same.

119 BEE-KEEPERS' SOCIETIES this side the water, as shown by an interesting list in *A. B. J.*

A SELF-HIVER has been invented in England by J. M. Hooker. It works something like the Dibbern.

I SECOND THE MOTION to have the N. A. A. incorporated in Canada. The old incorporation can be sandpapered off.

THE EDITOR SUGGESTS that I buy a pair of 25-cent specs. Wonder if he thinks I'm a millionaire; 10-cent specs are all I can afford.

DOOLITTLE SAYS (*A. B. J.*), "Don't give a newly hived swarm more than 4 or 5 empty combs at first, if you want them to work on sections."

I'M TRYING a pile of Miller feeders off the hives. Bees work on them wet days (and that's pretty nearly all the days) when they can't do any thing on fruit bloom.

THE LAZIEST FEEDING I have ever known has been this spring. Feeders that ought to have been emptied in 24 hours have stayed on the hives for three weeks.

DON'T FORGET that you can keep the chickens off the flower-beds by putting around them poultry netting only two feet high. Hens *can* fly over it, but they never do.

FOR SOME OF US it will be a comfort to read the report of losses of twenty bee-keepers given by Benj. E. Rice, in *A. B. J.* The losses range from 25 to 100 per cent, the average being 59.

AFTER READING Prof. Cook's words on pages 404 and 429, all that saved him from having his right hand shaken nearly to pieces was that I couldn't reach all the way from here to Michigan.

NOW LOOK HERE. A. I. Root must be stopped from writing so much about gardening or we'll all get the gardening fever and give up keeping bees. I just ache to get at some of the things he tells about.

EMMA HAS SEEN a number of laying queens go through excluders. I asked her whether the thorax or the abdomen seemed to hinder them most about going through. "Well," she replied, "they kept trying and trying; and when they did go through they went so quick you couldn't tell how they did go."

DOOLITTLE'S ARTICLE in a late GLEANINGS is a very mild plaint compared with the rough-shod manner in which Chas. L. Strickland goes for "the sponger of bee-knowledge," in *The American Homestead.*

I'LL LEAVE IT to friend Larrabee to settle about queens going through excluders, Ernest. What cases I have known about, as soon as the thorax passed, the rest went like a streak. Laying queens, mind you.

THE NEW PAPER, *National Bee Gazette*, St. Louis, Mo., like all Missouri bee-journals, is beautifully printed with clear type and good paper, and shows a good spirit. Might do well for the proof-reader to get a new grammar and spelling-book.

OH! BUT WON'T some of those Canadians just go for editor Newman! He's gone and included half a dozen Canadian bee-keepers' societies in a list of those belonging to the United States. Clear proof that he wants to incorporate Canada into the U. S. on the sly.

IN THE DISCUSSION as to whether bees *make* or merely *gather* honey, the advocates for *making* have a strong argument in the report of the government chemist, when, referring to nectar, he speaks of "the extent of inversion to which it is subjected in passing the organism of the bee."

IT'S WELL ALWAYS to be on good terms with the women. The printing-press that has printed the *A. B. J.* for 15 years was burned May 13; but friend Newman, being on good terms with the W. C. T. U., their largest press was at his disposal, and "the old reliable" kept up its record for being always on time.

"SOME YEARS we have the whitest kind of honey from buckwheat," says S. Nelson, in *National Bee Gazette.* I've seen tolerably light honey with a buckwheat flavor, but I always supposed it was mixed. The flavor of buckwheat is so strong that a very little will give a decided flavor without giving much color.

A GOOD ONE is told in Green's *Fruit-Grower*, to the effect that a cavity 8 ft. by 7½ inches in an elm was completely filled with honey-combs, and had been fastened up for 50 years with no chance for entrance or exit. "Empty combs of the queen-bee also showed that they had swarmed." Query: Do bees always swarm when the queen builds combs?

DWINDLERS, Mrs. Axtell reports, had plenty of brood in the hives all the time. I've sometimes suspected that the severe drain on the bees, of caring for so much brood, was the cause of dwindling. Did any one ever know a case of dwindling without the bees having more brood than they could well cover. Still, dwindling might bring about that state of affairs, no matter how well the brood was covered in the first place.

"THE GOOD FEELING that exists between the bee-keepers of Canada and the United States can not be broken by a half-dozen 'Incorporations.' Next fall, when we all meet at Washington, and get to shaking hands and talking over bee-matters, we shall never imagine there was such a thing as 'Incorporation' or any thing else that would tend to sever our friendship." So says D. A. Jones. His head is level, and his heart as big as ever.

PROF. COOK laughs at Prof. Wiley for doubting the purity of honey which contains more than 30 per cent water. Now, I feel like siding just the least bit with Prof. Wiley. Have we any right to send out raw nectar as honey? Ought it to be called honey? Ought it to be called honey if it contains 30 per cent water? Of course, there was no ground for Prof. Wiley's suspicion that man had mixed water in it; but ought it not to be evaporated down to a certain consistency before it can be called honey?

"THERE IS NOTHING NEW UNDER THE SUN."

SOMETHING NEW UNDER THE SUN.

Friend Root:—I send you an extract from an old and very rare book in my library. I copy it just as it is—spelling, capitals, etc.

"SAMUEL HARTLIB,
HIS
LEGACY
OF
HUSBANDRY.
London, 1655.

"Some Physical uses of Milk, and of Curing the Black Jaundies, &c." Page 261.

"I thought to have imparted unto you the Secret how to preserve Milk from souring, but I must refer it to a person of singular Honour, Piety, and Experimental learning who has made some trial of it, but has not fully satisfied his mind about it. . . .

"As for Doctor Ziegler's Germane Book, written purposely on the subject of Milk, when I visited him at *Zurich* he shewed it me, not far written for the Press. It will not be great, unless he resolved to add much of his own experience. For he tells mee, that, being miserably infected with the *Black* Jaundies in *Prussia*, and having been purged by the Physicians of that Country, with above 30 several sorts of purgations, even the most violent they could think of, he found himself never the better. Whereupon he resolved to take no more of their Counsel, but to try some conclusions of his own. And with the sole use of Milk he was perfectly cured. Besides he tells me that he hath several times, finding himself in some indisposition, prevented the returning of some hereditary diseases in himself, by abstaining from all manner of meat and drink, and living upon meer Milk, sometimes for fourteen days together. And I remember heretofore I have heard him say, that Milk is hurtful with other meats, but alone it is of unknown vertue."

I have requested that the above be given with the quaint spelling and capital letters used by Hartlib.

Now, if any are disposed to try this milk diet, they may, especially if bee-keepers, find much benefit from it. We know that milk is good for babes; and I can testify from my own experience that it is very good for the aged who may not be very far off from second childhood. Infants need to be fed frequently. Let me suggest that old people require the same, and many of them are great sufferers by adhering to the old rule of three meals a day, and nothing between these meals. If upon the milk diet. I would by no means recommend that it should all be taken in the hours of the regular meals, but at much more frequent intervals—in short, as often as the appetite craves it.

Let me give a leaf from my own experience, when I was so constantly handling bees. My dear wife once said to me, "How strangely your appetite for milk seems to vary! Sometimes you care nothing for it, while at other times you seem almost to live upon it; and often you drink a quart or more at a single meal." Having my attention thus called to the matter, a new and interesting train of thought occurred to me. I often remembered hearing persons say, "Mother would never allow us to eat new honey unless we drank milk with it, because otherwise it gave us the colic."

Extending my inquiries I became satisfied that milk is an antidote for bee-poison; for when I was not working with bees I cared little or nothing for it; and it was only when my system was fairly saturated with bee-poison, that I had an almost insatiable craving for milk. I then began to study what eminent writers had to say about any connection between milk and honey, and found that, from the time of Hippocrates, who was born 460 years before the birth of Christ, down to modern times, successive testimony could be found as to the value of milk to prevent any injurious effects from eating honey.

Notice, now, how frequently the sacred Scriptures commend the Holy Land as a land flowing with *milk and honey.*

Notice, also, the curious association of milk with honey in "the Song of Songs, which is Solomon's,"—Chap. 4:11: Thy lips, O my spouse, drop as the honey-comb; *honey and milk* are under thy tongue.

PERHAPS THERE IS SOMETHING NEW UNDER THE SUN.

The bridegroom, meaning to compliment his spouse, says, "Honey and milk are under thy tongue;" which is the same as saying, "Thou art a very sweet woman!"

In conferring with Mrs. Kerr, my friend and next-door neighbor, she said to me, "My mother, who was German, often made us eat *butter* with *honey*, because it prevented honey from giving us the colic." This immediately suggested to my mind a new train of thought. In Isaiah 7:15, it is written of the Holy Immanuel, "Butter and honey shall he eat," etc. Verse 22, "And it shall come to pass, that, for the abundance of milk that they shall give, he shall eat butter; for *butter and honey* shall every one eat that is left in the land." See also Job 20:19: "He shall not see the brooks of *honey and butter.*" Unquestionably, milk and honey and butter and honey are, in the Bible, closely associated together.

In an article I wrote in 1870 for the *American Bee Journal* I announced my discovery of the reason why honey so frequently disagrees with those who eat it. I showed that it was scarcely possible to take it from the bees, either in the comb or in a liquid state, without more or less of the bee-poison being in it; that if any one said to me that he could not eat honey with impunity I could assure him that, by bringing it nearly to the boiling-point, the bee-poison, which is very volatile, would escape, so that he could use it freely, while if a very little of this poison was put into any syrup which he had before used with impunity, it would affect him just as honey did. Unquestionably, the sacred writers, who so often refer to milk and honey and butter and honey, knew that milk or butter added to the honey prevented the pain caused to so many persons from eating pure honey alone; and thus milk and butter were so frequently spoken of in the same connection. Might not cheese, another product of milk, be also the right thing to use with honey? Putting all these things together, it will be seen how naturally I was led to what, I think, is something new in exegesis, and gives a better understanding of some passages in the word of God—"The good land!" "The land flowing with milk and honey!" Wherever milk is found in abundance, there, as a matter of course, will bees and honey also be found. At some future time I may give my readers a new exegesis of some other passages of Scripture relating to bees. L. L. LANGSTROTH.

Dayton, Ohio, June 6, 1892.

THE GREAT BEES OF INDIA—WILL THEY BE IMPORTED?

THE PROPOSED EXPEDITION OF THE NATIONAL GOVERNMENT FOR THE FINDING OF NEW RACES OF BEES; AN AUTHORITATIVE STATEMENT FROM FRANK BENTON.

The Junior editor of GLEANINGS requested me some time since to furnish for his readers information regarding the truth of a report recently circulated by the newspapers, to the effect that the government intended to undertake the importation of the Giant East-India Bee, *Apis dorsata*, and that this work was to be entrusted to me. I have deferred somewhat my compliance with his request, hoping later to be able to give definite information—in fact, to be able to say that this work, whose accomplishment has been so long desired by the bee-keepers of both Europe and America, would be undertaken; when the work would be entered upon; and how we proposed to accomplish it. I regretted the appearance of the newspaper reports referred to. They were premature, and wholly unauthorized by myself or any one connected with the Division.

Something over a year ago Dr. Riley, U. S. Entomologist, first addressed me in regard to the government work in apiculture, supposing at the time that I was still abroad, and that he could secure an authorization for me to proceed to India after *Apis dorsata*, which, he stated, he was very desirous of importing into this country. His letter passed me in mid-ocean, for, after a long self-imposed exile, I was on my way to my native land. It finally reached me in Western New York, whither I had gone. We had considerable correspondence about the matter, and, as I learned afterward, it was Dr. Riley's intention to have me endeavor to introduce some other desired insects at the same time. Thus, he had assured prominent fig-growers of California that he would make every effort possible to introduce the caprifig insects, which are necessary to the pollenizing of the Smyrna fig, this valuable variety not being productive in California solely for want of such distribution of its pollen. He was also quite anxious to introduce certain parasites of well-known injurious insects which have been imported without their natural checks. Difficulties unforeseen by both Assistant Secretary Willits and Dr. Riley made the postponement of this work imperative. But the subject is again under consideration, with a much better prospect than heretofore that Dr. Riley's desires in this direction can be carried out. This does not, of course, mean a certainty, but merely that the chances are now good for its accomplishment. They will be enhanced if bee-keepers and apiarian journals make known their desire to see the experiment tried.

I believe the experiment of introducing *Apis dorsata* is worth trying. Mr. Dathe, the only practical bee-keeper besides myself who has visited India in search of *Apis dorsata*, and who followed, in his efforts to introduce this bee into Europe, exactly in my footsteps, agrees with me in the desirability of testing this giant bee. Indeed, at the Frankfort *Wanderversammlung*, where I met him, he proposed to me that we should make the third effort together. Yet I should not like to have any one entertain such great expectations regarding these bees as to cause him to be disappointed if the experiment should not result in all we hope for. At present the whole undertaking must be viewed *strictly in the light of an experiment* from which it is, however, *possible* we may obtain important practical results, and *highly probable* that the direct practical results will at least be sufficient to prove the wisdom of such an expenditure on the part of the government, though private parties attempting it could hardly hope to recover the cost. In any event, a more extended investigation of the bees of the Far East than I was able to make during my stay in India is greatly to be desired. How frequently far greater sums of money have been granted to fit out expeditions to go to distant parts of the earth to make observations during an eclipse or transit of some heavenly body, the main object of which might be to determine whether the sun or some star is more or less distant from the earth than was generally supposed! And how often almost the whole benefit to result from such an undertaking depends upon as slender a chance as the presence of clear weather during the few minutes' time the phenomenon lasts! It is far from my purpose even to hint that such work is not valuable, for it adds to the sum of human knowledge; and often the most abstract and apparently useless information proves of great practical use to the world. But I wish to point out how much greater reason there is for attempting work such as the investigation of these eastern honey and wax producers—work which, viewed abstractly, has a value equal to such undertakings as have been mentioned, and which, at the same time, promises to add another source to our national wealth. And the interest in our pursuit which this work will arouse when done under the auspices of the national government will not fail to redound to the advantage of apiculture.

WHAT MAY BE HOPED FOR FROM THIS UNDERTAKING.

A brief statement of the results which it is hoped might be brought about through this undertaking will be of interest to all bee-keepers.

1. It is hoped *Apis dorsata* may be domesticated and kept in hives in a manner similar to our ordinary bees; and that this large bee, having a tongue longer than that of ordinary bees, will be able to secure the honey from various blossoms—notably those of red clover—from which our bees get little or nothing. Also that they will at the same time aid in the fertilization of these blossoms, so that better seed, and more of it, will result, especially in the case of the first crop of red clover produced when bumble-bees are not numerous.

2. An effort would be made to produce and test various crosses between *dorsata* and *mellifica*. If such crosses can be obtained, possibly something more valuable than either of these bees would result. One is led to think of this by the fact that drones of *dorsata* do not differ greatly in size or general appearance, though somewhat in habit, from ordinary drones.

3. Even if *Apis dorsata* should not prove valuable in domestication, there seems to be no

reason why it should not, if introduced and set free in our Southern States, produce there, as it does in the forests of India, great quantities of honey and wax, the latter product (derived almost wholly from *Apis dorsata*) forming an important article of export from India.

4. We may hope to bring to this country *Apis indica*, a bee smaller than our ordinary honey-bee, but an industrious gatherer, which, in quite limited numbers, is kept in hives by the natives of India. It might be found that *A. indica* would visit only smaller flowers than our bees, and thus, even if kept in the same fields, not lessen the yield we obtain from the races already here. It would be no small gain for the apicultural interests of the country if three apiaries could be kept at one point without material interference with one another.

There is also in connection with this undertaking much other work from which we have reason to expect important results. Of this, information will be given in due time. I have no desire to arouse hopes that might prove ill-founded and thus bring only disappointment.

In conclusion I wish to ask the indulgence of my readers to enable me to correct an error connected with the subject, but the original source of which I do not know. It first appeared long ago, and has been repeated frequently—even in books on bee-keeping. I refer to the statement that "the first expedition after *Apis dorsata* cost Mr. D. A. Jones, of Canada, a small fortune," and that in this undertaking I "was the agent of Mr. Jones." The facts are, the expedition cost less than $1000; I was in partnership with Mr. Jones in this work, and it cost me just as much as it did him; moreover, as Mr. Jones did not go to India, but was in Canada at the time, I had the hardships of the work, and the illness which followed my exposure in the jungles, to bear. FRANK BENTON.

Washington, D. C.

[We had seen the newspaper reports referred to, and, hesitating to reproduce them for fear that they might not be authoritative, we wrote to Mr. Benton for a reliable statement, with the above result. Of course, every bee-keeper and every bee-journal will hail with delight this effort on the part of the government in our behalf, and GLEANINGS will do every thing in its power to assist the enterprise. We owe a vote of thanks in advance to Prof. Riley and to Hon. Edwin Willits, and congratulate them on being able to secure the services of so experienced a man for the work as Frank Benton. The reader should not confuse the name of Prof. *R*iley with that of Prof. *W*iley. The former has been our friend; and it is he who, through the influence of Prof. Cook, authorized the establishment of an apicultural station at Lansing, and which already promises much good to bee-keepers. We wish we could say as much for the author of the Wiley canard—the professor whose name begins with a W. It is an open question with intelligent and honest bee-keepers whether the chief chemist (the wily man) is a friend or foe.]

WIDTH AND THICKNESS OF BOTTOM-BARS, ETC.

DOOLITTLE DECLARES IN FAVOR OF THE NARROW BOTTOM-BAR.

A correspondent writes: "What width and thickness of bottom-bars do you use, and why do you use them thus?"

When I first began using the frame hive I used a bottom-bar the same width as the rest of the frame, which usually was one inch, and ¼ inch thick. The bottom-bar to the frame was also ½ inch above the bottom-board of the hive. After using frames thus for some years it came to me one day that half an inch was too great a space under the frames, not only on account of this being a waste space for the bees to loaf in, but in many of the hives the bees were bent on building little mounds of wax and propolis up to the bottom of the frames, seeming, apparently, to use these as step-ladders, if I may be allowed the expression, on which to climb up to the combs or bottom-bar of the frame. After a while these mounds got so high that the bottom-bars of the frames would rest on them, and then I had the frames tipping every way, not at all to my liking. I now resolved to reduce the distance between the bottom-bar of the frame and the bottom of the hive to $\frac{5}{16}$ of an inch, as I had always called ¼ of an inch about right for a bee-space, where the matter could be made exact; and knowing that the hive would shrink and swell some, I allowed the extra $\frac{1}{16}$ of an inch for that. After using frames thus for some time I found that now and then a frame would be glued down to the bottom-board, and concluded that ⅜ of an inch would have been a better space below the frames than the one I had adopted. When thinking this matter over, I finally concluded that there was no need of the bottom-bar to the frame being ¼ thick for the bees to brood, as $\frac{3}{16}$ would furnish all the strength needed at this point.

In thinking this matter over it was but natural that I should look at the frames of combs to see if I thought a bottom-bar so thin would be strong enough. In thus looking over the frames I see that, in nearly every one, the combs were up a bee-space from the bottom-bars of the frames, this space giving a place for bees and queens to hide, when I wished to find the queen, or when I wished to clear the combs of bees; besides, the bees were keeping this space warm, with no profit as regarding young bees. After some careful thought along this line I decided to make 100 frames with bottom-bars ⅜ wide by $\frac{3}{16}$ thick, and try them. The result of the trial gave neither trouble in the frames being glued to the bottom-board, nor mounds of wax; but, what was of greater importance to me, it gave me a comb built clear down to the bottom-bars of the frames, and fastened to them in most instances, thus doing away with all the troubles along all lines which I had encountered before. I have also used bottom-bars ½ inch wide; and, so far as I can see, these work equally well, and have the advantage, when we come to wire the frames for foundation, of being a little stiffer to resist the tension of the wire. For these reasons I have used these narrower and thinner bottom-bars for several years past, and am so well pleased with them that I desire no others.

QUEEN-CELLS IN THE UPPER STORY.

As the time is here for queen-rearing again, I will try to make the cell-cup plan a little more plain, if possible, especially as I see on page 692 of GLEANINGS for 1891 that friend Root wishes I should point out the "missing link." I there see that J. D. Fooshe starts his cells in queenless colonies, after which he gives them to the upper stories of colonies having queens below to finish, and friend Root says he is doing the same thing, for only in that way, or where the queen was absent from the lower story, does he have success. I can not understand why the cell-cup plan, *just as I give it in my book*, does not work in the hands of a few, while hundreds write me that it is a perfect success with them. There is no "missing link" to be supplied, that I know of, if the directions are followed *just as I give them*. Queen-cells will be just as good if started in queenless colonies, as the two friends say they do it; but *I never put the cell-cups into queenless colonies* to have them started, and, taking the year through, have fully 80 per cent of all started, accepted, and completed. Do the friends that fail put the amount of No. 1 shot, as to bulk of royal jelly, into each cell-cup before transferring the larva to the cup? I see neither speaks of this. A queenless colony having its combs of brood taken away from it will work the cups without the royal jelly, but the bees in an upper story will not. Again, so far as I can see, the bees in an upper story will work the cell cups just as well where the royal jelly is put in by a person as they will where it is put into these cups by a queenless colony. One of the objects of my plan of queen-rearing was to do away with all queenless colonies. Again, I see both of the friends say that they find that colonies get tired of cell-building in the upper stories. This is contrary to my experience, for I keep colonies building cells from the time they are strong enough in the spring till I get through in the fall. To do this I see that the upper story is supplied with two frames of larvæ all the while, the frame of cell-cups being between these frames of larvæ, each time. I have been wondering if this might not be the "missing link." This larva is not only supplied so the bees will accept the cell-cups better, but also that the proper amount of jelly may be supplied to the larva; for where bees are feeding plenty of larvæ they have an abundance of chyme for the cell-cups. Every week I take the two frames of sealed brood and change them for two frames of eggs and small larvæ. Again, if honey is not coming in I *feed liberally*. Is not the missing link in some of the above? G. M. DOOLITTLE.

Borodino, N. Y., May 26.

[Your experience with narrow bottom-bars is quite in line with what we have observed in various apiaries as well as with what we have picked up from various sources. For this reason all our brood-frames of the later types have the new style of bottom-bar.

We are having better success this season in having the bees complete the cell-cups; but you have supplied in your article above two possibly missing links. While we have given all our cell-building colonies unsealed larvæ, we have, perhaps, neglected to give them eggs or *very young unsealed* larvæ; and, again, we have not fed them "liberally" when no honey was coming in. It is attention to these very small details that brings success, and we will report results later.]

SURPLUS CASES AND SEALED COVERS.

SOMETHING FROM JAMES HEDDON REGARDING THEM.

The good qualities of the surplus storing-cases we use in our apiaries is a matter of great importance to the success of bee-keepers. The requisites, as I view them, are as follows: The case should be light, not deeper than sufficient for one tier of sections, and free from any thing like complications. If the bee-keeper is satisfied to raise section honey without separators of any kind, I believe my old-style case, known as the "Heddon case," has never been improved upon nor equaled by any other. It is light, very strong and durable; most simple with which to quickly remove the sections or to get the bees out of the case before carrying it to the honey-house; it is also a cheap case, which is a great consideration with the large honey-producer. But if separators are to be used, and the apiarist is producing on a small scale, the wide-frame case, with its one-story wide frames and tin separators, is my choice; but these are more costly, heavier, and require more time for their manipulation. For the large apiarist who prefers to use separators, the tin T case, with the wood separators, is certainly the best of any extant. The first I ever saw or made was before they were described to the public (so far as I know). Vandervort, of Pennsylvania, of foundation mill fame, visited me and showed me how to make the tin T surplus case, as then used, and, if I remember correctly, invented by him. In his case, Mr. Vandervort used the "follower" with spring pressure at one side of the case. Now, I object to followers, springs, wedges, or any thing of the kind, in tin T cases. I have used a great many hundred of these cases for many years, and I have experimented with them with followers, etc., but I find that our sections are made accurately enough so that they can be dropped into the case with separators, and fitted there snugly, if necessary, by pushing in an extra wood separator. I prefer to have my tin T stationary; that is, solidly nailed into a saw-kerf let into the sides of the case. There are not enough advantages to be found in movable tin T's to offset the disadvantages and extra cost, in my experience.

SEALED COVERS.

On page 343 you ask for reports from keepers experienced in the use of absorbents over large numbers of colonies, in winter. Up to about 15 years ago I never wintered without absorbents; but at that time, in an out-apiary containing 207 colonies, packed outdoors, I placed the absorbents over about half, and left the cover tightly sealed over the other half. I could not detect any difference in the result. During the many years since, I have packed in both ways; and until the last few years I have left all tightly sealed, both in the cellar and out-doors, because it is less trouble and expense; and, during all the years, I think it is a little the safest. If this experience is of any value to you, I am pleased to give it. JAMES HEDDON.

Dowagiac, Mich., May 7.

SEALED COVERS OR ABSORBENTS.

THE RAMBLER DISCUSSES THE MATTER.

I have been quite interested in the discussion of upward ventilation vs. sealed covers, and my interest is emphasized somewhat by learning that my old apiary in Eastern New York has wintered in the cellar with sealed covers, and not a swarm lost; and it is needless to say, that, were I to keep bees again in the East, sealed covers would be used; but, mind you, that two and a half inches of ventilation would also be used under the brood-chamber. The diversity of experience, as recorded of late in GLEANINGS, I think, arises from difference in climate and also in methods of packing. It is more difficult to winter bees in Central New York than it is further north down the Champlain Valley; and the method of packing that would answer in one area might not answer in another; and so it goes all over the northern country, and cellar vs. outdoors, absorbents vs. sealed covers, have their advocates.

Should I winter bees outdoors with sealed covers I should certainly use a generous packing over them; for, in whatever position they may be, if cold air strikes its upper surface the under surface becomes a good condenser of moisture; while if protected with packing above, and a good swarm of bees below, the condensation takes place in the generous air-space below; or, in its absence, the condensation is found in the corners of the hive nearest the entrance.

In the case of Mr. Dadant, I should not wish to judge the matter merely with the use of oilcloth, for I believe there is a vast difference between the impervious surface of an oilcloth and a planed board, though it may be covered with propolis; furthermore, an oilcloth over such a mammoth hive as the Dadants use, where the brood-nest in winter contracts to less than half of the space, invites rather than averts condensation.

Bees wintered in a cellar, with surrounding equal temperature, and no drafts, need no packing over the covers; the temperature is equally maintained above and below. In the communications of W. W. Larrabee and Miss Cyula Linswik I find testimony for sealed covers. I have been in the apiary of the former, and have seen the large cushions of sawdust and chaff that lap away over the brood-chamber, and of many inches in depth, when placed over a swarm, the escape of air and moisture is so very moderate that it is practically a sealed cover; so is also that woolen comforter and additional packing used by the beautiful name spoken of.

Mr. Doolittle said, some time ago, that he made his packing solid by tramping it into place. I don't remember as to the size of his feet, but the body above them is no light weight; and whatever was tramped would necessarily have the consistency and effect of a board. Mr. Manum uses several bushels of poplar shavings over his bees. In all cases in favor of absorbents we find the same care and thoroughness of having plenty of it, well packed down.

The whole matter can therefore be summed up thus: The point is, to keep an equal temperature *above* and below the cover. The heat above tends to prevent condensation; the heat below carries off what little there is. Our difference of opinion will be mainly as to which is the more convenient—a board or a heavy cushion. Give the board to the RAMBLER.

[You have stated the case exactly, and summed it all up in a nutshell.]

DRONES AND QUEENS.

THE TWO-MILE THEORY, ETC.

I notice, in friend Doolittle's article, p. 371, he mentions (and, if I remember rightly, it is the accepted theory) that queens do not lay drone eggs till the second season of their existence. Now, I have had experience in two cases that is decidedly to the contrary. Of course, your A B C, or some other authority, may suggest exceptions to the rule; but if so, I do not remember; however, I will give my observations in one case. Last season, some time in May, I wrote to a Mr. Taylor, of Ozan, Ark., to know if he could furnish me a tested breeding-queen, and received the answer that he had none, but would have in two weeks, or by the time my order might reach him. I ordered and got my queen, I should say by return mail, or about the first of June. I introduced her to a colony of about one pound of bees. She proved to be very prolific and soon had several frames full of brood. Now, with this very same theory in view, I put cages in all my other colonies (no other Italians in ten miles of my apiary, mind), put a full frame of drone comb in the center of the above colony, and had drones duly hatched, and raised a dozen and a half of queens, every one purely mated, and have as good queens from this in-and-in breeding as I ever saw. Now, it is for Mr. Taylor to inform us if this queen was six months or less old when she produced drones, as I can furnish plenty of witnesses as to the truth of the above statement.

DRONES AS CONGREGATIONALISTS.

Friend D. is also of the opinion that drones have a certain place to congregate, and that the queens meet them there. Now, as to their congregating inclinations, I read some writing on this subject, I don't know how long ago, and accepted the theory as fact, as I had noticed them so congregated, and they do every season in one mile of my place; but do queens very often meet them there? Observation again says, "Rarely;" for instance, those queens above mentioned, that I reared in August and September, with "free and unlimited coinage" of drones in one mile on either side of me. Now, I don't want to compare my observations with those of Mr. D.; but sometimes the "small fry," as you sometimes call us fellows, see some little kink that has escaped the more busy eyes of the big guns. The fact is, my connection with the bee-business, though for years, has been more of the experimental than otherwise. J. H. MARKLEY.

Carbondale, Kan., May 12.

OLD BEES AND COMB-BUILDING.

FACTS FROM OBSERVATION.

On page 326 friend Doolittle takes up my theory, that the old bees do the housework and the young ones go to the field, and gives us some good arguments to prove that I am wrong. Perhaps my suggestions were a little amiss, and may be he is a little amiss too. I don't think the young bees do all the housework—they may do a part of it. But we do know that bees that have passed the winter, act as nurse bees until they get young ones hatched in the spring, and those bees of mine last summer nursed their young and built combs until they were at least 96 days old. You will see by my report last year, Oct. 1st GLEANINGS, page 761, that I examined them Sept. 10th. They were then 90 days old; and as I had taken all of their brood from them Aug. 24, it would be 21 days after Aug. 24 before they could hatch a bee, or until the 14th of September—96 days in all. I said in my report that I was not sure but they would pass the winter if allowed to hatch the crop of brood that was then coming on. Well, I did let them alone after that. I let them hatch all the brood they could. The middle of October I packed my home yard for winter. This colony had on a second story above the honey-board. I filled that upper story with straw, and did not open the hive. This spring, April 15th, I looked over the yard to see if all had honey to live on. When I came to this hive I saw a few bees going into the hive. I supposed they were other bees taking out what honey they had left. I opened the hive, and, to my surprise, the colony was alive and in fair condition, and is yet, May 30. Of course, I don't believe that any of the bees that are there now, except the queen, were put in there last June. But what bees they raised to go into winter must have hatched after the 14th of September. They are now a fair colony, and have had no help except being furnished with plenty of honey, and wintered on their summer stand.

CONGREGATING DRONES.

I read Mr. Doolittle's article on page 372, about drones congregating in certain places, and the queens going there to mate. My opinion is, he is right. I believe in his theory, exactly. I will give a little bit of my experience in that line. When I was a boy about 15 years old I lived with my uncle in Herkimer Co., N. Y. Nearly all of the neighbors, as well as my uncle, kept a few hives of bees. On my uncle's farm, in the back pasture, was a grove of timber, five or six acres. Among the small timber there were a few large trees, I think now about 20. One hot day in the summer I went over there to catch the horses. They were in the grove. I heard a great roaring of bees, as I thought. I came to the conclusion that there was a swarm of bees there somewhere. When I got to the house I told what I had heard in the grove. My uncle went with me to the grove to see what we could find. When we got there the roaring was as loud as ever. He thought as I did, that there were bees there. We looked all the large trees over for bee-trees, but found none, and gave it up for the present. The next day was the 4th of July. I remember that all the family except me went off to a picnic. I had to go over to that grove. I would rather go there than to the picnic. I wanted to find out what made that humming over there. I hunted a while for bee-trees. There was one tree about the center of the grove that was bigger and taller than any other tree in the grove. I saw that I could climb that tree, clear to the top, if I could get up the first 20 feet. There was a small tree near that I could fall against the large one. I went back, got an ax, and fell the small tree against the large one. It lodged against the large tree good and strong. Then up I went, to the top of the large tree. The top of the large tree was in such shape that I could get my head above all the foliage in the grove. I sat and rested awhile. The humming was still loud, but appeared to be mostly overhead. Pretty soon I saw a drone bee alight on a branch near me. Very soon another stopped on another branch, and, by looking close, I could see 20 or 30 perched on the top twigs of the trees about me. I don't think that any one of them rested more than half a minute at a time. As other drones or flies passed they would give chase. Soon others, or the same ones, would be back again. So they kept it up, having a play-spell—a regular Fourth of July. I stayed over two hours in that tree-top, watching them. I enjoyed the sport better than going to the picnic. I have heard that same kind of humming in the woods a great many times since, and am satisfied that drones do have their playgrounds where they congregate, and I have no doubt that the queens are attracted there by the noise, or, perhaps, by the scent, of so many drones flying together.

MY WINTER REPORT.

Our bees have wintered as well as usual. I lost very few. About all the loss came from queenless colonies. We have looked over one yard and clipped the queens. We expect to clip all queens this week. After that we can tell better how they are doing, and how many we have.

FOUL BROOD.

In the *Wisconsin Farmer* I read an article, a clipping from the *Canadian Bee Journal*, by John Gates, of Ovid, Pa. He says, extracting from the brood-chambers is one great cause of foul brood. It throws out the larval food, leaving the larvæ bare. The bees can not replace this food as it was, in time to save the larvæ, so of course it dies, causing foul brood, etc.

Now, I don't believe that extracting honey from combs that contain larvæ will cause foul brood, from the fact that we have done it right along every year for over 20 years. I have extracted the combs from 300 to 500 colonies three to five times in a season, and have never had a case of foul brood yet. I don't say that all the combs that we extract contain larvæ, but some of them do contain brood in all stages, from the egg up to hatching bees.

When we commenced to extract the first time for the season we want to take out every bit of honey that the combs contain, for the reason that the honey gathered in the fall and early spring is dark. We get it just ahead of the white-clover honey, and it is important to get the dark honey out as close as possible. If we leave any of it, it will come out with our second extracting; and a little dark honey mixed with a good deal of white will cut down the price of the white a cent or two a pound. To get rid of the dark at this time, we have to extract combs that contain brood. We are careful not to whirl them too hard, and I don't think it hurts the brood as much as Mr. Gates tries to make out.

E. FRANCE.

Platteville, Wis., May 30.

[The above illustrates with what painstaking care friend France verifies his statements. We have had so many reports from eye-witnesses, to the effect that drones do congregate, we may now safely put it down as a fact, although further corroborative testimony is always interesting, as in the case of Mr. France.

Although we have refuted it again and again, it seems as if the theory of spontaneous generation, or, in other words, that dead larvæ will develop into foul brood, must now and then crop out. It is wholly unscientific, and not in accordance with theory or fact. As we have said before, corn can never grow where no corn was ever planted; neither can the germs of *Bacillus alvei* generate spontaneously in living or dead larvæ.]

GLEANINGS AND PATENTS.

ADULTERATION OF HONEY, AND ITS ANALYSIS.

I was very much pleased to read what you wrote on page 385, on the above topic. There has been a great deal of confusion and misunderstanding regarding the attitude GLEANINGS assumes toward patents. Now we are told, practically, that that class of results of mental labor secured by patents is property; that is, as we understand it. Now there will be no dispute in regard to the moral right for one to dictate the terms upon which he will dispose of his property. Now the whole controversy is ended.

THE PURE-FOOD BILL.

Bee-keepers have a moral interest in this bill, and they likewise have also a business interest in its passage. I do not think there is room for any discussion among any of us with regard to its being right, and to our interest; but there is one factor connected with it—one no doubt seen and well understood by our legislators at Washington—which usually their constituents do not comprehend. Law is always an evil; but very many of our laws are necessary evils, and there is no dispute regarding the necessity of law and order; but from the fact that all laws carry more or less evil consequences, I am opposed to any law that we can possibly get along without. I do not believe that any of our food is adulterated with any thing injurious. All that talk I believe to be sensational; it is simply food for newspapers. The Wiley reports are right in line, and of just the nature of a thousand others, about other food than honey. The terrible(?) mixtures found in coffee, tea, and spices, are similar fabrications. Full in the faith that adulterants in pepper and other spices are not of an injurious nature, I do not want any guardian to protect me from the avarice of my neighbor. I am sorry that such avarice exists, but I would rather go without protection than have our people lawed to death. It would be good if we could do something to prevent overeating. I am in favor of lectures. It will tend to correct our people regarding this matter, which is the great cause of that dire ailment known as dyspepsia, which in time becomes a cause of evil. I do not want any law enacted to determine the quantity or quality of the food we eat. If we are to produce we must depend upon ourselves for something—must cultivate self-reliance, and not feel that we are guided by law through every movement in life. It is my opinion that those principles have in the past and will in the future prevent the passage of many bills intended by some to produce good results. As regards our product, honey, we have had ample evidence that the science of chemistry is unable to detect the addition of manufactured cane and grape sugar. As a juryman I would not convict any man upon the evidence of all the chemists in the world, for I know that they do not know, and that they know they do not know; and I want them to know that I know that they know that they do not know. They draw a handsome salary for holding down a soft seat, and it is enough for people to pay it without being scandalized and persecuted as friend Muth and others have been. Prof. Wiley did not know about the honey, and he had also learned that the city dealers did the adulterating; so, without knowing the character of our Cincinnati friend, he fired his gun, and the recoil hurts worse than the charge. Ignorance is usually the cause of wrong-doing.

Dowagiac, Mich., May 25. **James Heddon.**

GRADING.

A PROPOSED COMPROMISE.

Dear Ernest:—Although exceedingly anxious that, before the convention at Washington, some system of grading should be offered that would be so nearly acceptable to all as to meet general acceptance, yet I shrink from any attempt at formulating such a system. The plain truth is, I don't feel that I know enough for such a task. Yet I have made the attempt to do as requested. I can not apologize for the system I offer by saying it is hastily thrown together. It is nothing of the kind. It has been the subject of much care, and the hardest thought I am capable of giving. There is nothing original about it, except the string that ties it together. It is a mosaic, made up from all the systems that have been offered, modified somewhat by the discussions I have heard and read. If freely criticised in the right spirit, it is possible that something may be made out of it that shall be satisfactory, even if it be so modified as a result of the criticisms that nothing of the original draft can be recognized. But here is the system, having four grades, depending on appearance or condition independent of the source of honey, and four classes of honey.

Fancy. Combs straight, white, well filled, firmly fastened to wood on all four sides; all cells sealed; no pollen, propolis, nor travel-stain.

No. 1.—Wood well scraped, or entirely free from propolis; one side of the section sealed with white cappings, free from pollen, and having all cells sealed except the line of cells next the wood; the other side white, or but slightly discolored, with not more than two cells of pollen, and not more than ten cells unsealed beside the line of cells touching the wood; comb fastened to the wood on four sides.

No. 2.—Three-fourths of the total surface must be filled and sealed; wood well scraped of propolis.

No. 3.—Must weigh at least half as much as a full-weight section.

There are the four grades.

For the classes of honey, I would suggest the four already in use, sufficiently understood from the names alone; namely, *light, amber, dark, mixed.*

You will see that there is nothing new in any of this. It is hardly probable that it will entirely suit any one. It does not suit me. I have not tried to give what would suit any one man or set of men. I have merely made an attempt to come as nearly as I could to what all might agree upon, each one making some concession for the general good. If some one has something better as a basis to start with, I shall be not only willing, but glad to see this thrown aside and the better taken in its place. But *something* must be taken as a basis. It will not do for each one to offer the system that exactly suits *him*. We'll not get on very fast in that way. If no better basis is offered than the one I have given, then let each one look it over and see, not what changes must be made to make the plan entirely acceptable, but, rather, let him see what is the least change necessary to make him willing to agree to the system, taking into account what others as well as himself may desire.

I see I have made the impression that W. C. Frazier's system suits me better than all the rest. That is hardly true, as will be seen from the system I have attempted; but I like his idea of having a system of grading which does not involve the honey itself, leaving that as a separate classification. Others had the same idea, but did not bring it out so clearly, or, at least, it did not strike me so.

The names of the grades are simple. They are easily understood, both by the producer and consumer. And I don't know why the consumer shouldn't fully understand just what they mean. There will never be a great overstock, I fancy, of honey classed as *fancy*. Perhaps it is drawing the lines rather tightly to say, "All cells sealed." Possibly a certain number of cells next the wood ought to be allowed unsealed. I think very few have been in the habit of sorting out their best honey into this grade; but the man who puts several tons on a large market could select a number of crates for which an extra price could be obtained, and that without lowering the price of his No. 1 honey.

The No. 1 contains the bulk of a good bee-keeper's crop, and on that account it is the most important of all. The only bee-keeper with whom I have had a chance to talk the matter over, objects to my putting down "ten cells" as the limit allowed unsealed on the poorer side of a No. 1 section. But it seems to me that, so far as possible, every thing should be very exact. If such a phrase as "only a few cells" should be used, then some would understand that to mean three, and some fifty. If ten isn't the right number, then make it five, twenty, or whatever is thought best; but don't leave it indefinite. The term "slightly discolored" is indefinite, and on that account objectionable, but I don't see how to better it easily.

In No. 2, not more than one-fourth of the total surface must be left unfilled and unsealed. Possibly it is not necessary to say three-fourths of the surface must be *filled* and sealed, for it will hardly be sealed without being filled. As to the remaining fourth, it may be filled and not sealed, or there may be empty comb or entire vacancy to the amount of one-fourth of the section. Of course, the unsealed part might be on one or both sides. That is, one side might be all filled and sealed, and the other side half sealed, or each side might be three-fourths sealed, or one side may have anywhere from the half to the whole of it sealed, only so that there shall be enough sealed on the other side so that the sealing on both sides taken together shall be as much as three-fourths of the total surface of both sides added together.

The difficulty of adopting a system of grading that shall be satisfactory to all is greater than at first anticipated, so that I do not wonder that some have little faith that any one system can be agreed upon. I think that all agree that the ground of the difficulty lies in the fact that different localities raise different kinds of honey, and each locality wants a system of grading that shall throw no discredit upon the honey raised in that locality. If I am rightly informed, the York State men have no difficulty in agreeing upon a system that suits them; so can the California men; so can the Mississippi Valley men. Now suppose white clover is the only kind of honey raised all over. There would probably be no great difficulty in settling upon a system acceptable to all. No. 1 white clover would easily be the same in York State or in Western Illinois; and then suppose that, all over the land, a second crop should be obtained from Spanish needles. Would not all agree that a No. 1 Spanish-needle section should be just the same as a No. 1 white-clover section, except that one was filled with white-clover honey and the other with Spanish-needle? and the same way if all the different sources of honey ruled in every location. Now, if I am correct in this then there ought to be no more difficulty in agreeing upon the grades, as things now exist; and then the only thing to add is, to say what kind of honey is contained—light, amber, dark, or mixed. If any one objects that light, amber, etc., are not distinctive enough, then there need be no difficulty at any time in specifying particularly any one class of honey. Indeed, I should expect that, in time at least, some few particular kinds of honey would come prominently to the front, and that possibly in some markets No. 1 Spanish needle might be quoted higher than No. 1 light. But the great thing is, to agree upon the grades, to be alike applied to all kinds of honey, and I have some hope that we may reach that. C. C. MILLER.

Marengo, Ill.

[We are heartily in sympathy with the doctor in his effort to get a system of grading that will insure some probability of adoption at the North American at Washington. While his plan, as he suggests, is not original with himself, it embodies the idea of simplicity, and, at the same time, elasticity for different locations and different kinds of honey, in a way that is better, perhaps, than any thing else that has been proposed. There is possibly one criticism that will be made; and that is, that the different grades should be *lettered* rather than *numbered*. After all, we do not know that we would insist on that point too strongly, because the No. 2 grade is, in reality, No. 2 honey.

When our forefathers framed the articles of our constitution — an instrument admired the world over — it was by no means satisfactory to every member of the body that framed it. But each one was willing to yield a point for the sake of getting something better than they had; and what a world of good it has done! Now, we as bee-keepers should be careful to see that we are not prejudiced, but willing to yield a point for the sake of obtaining *something;* and even if all do not use it after it has been formally adopted by a national body of bee-keepers, a large majority probably would. We *need* something, and *must* have a system of grading whereby honey-buyers all the way from San Francisco to New York may be able to know just what is meant by a certain description of honey. We should like to hear briefly from all those who have proposed systems of grading, as to what they think of the one above; and particularly should we like to hear from commission men.]

DIBBLE'S LATEST SELF-HIVER.

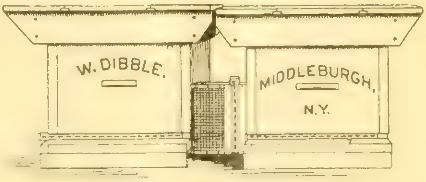
A CONTINUATION OF THE SUBJECT.

GLEANINGS for May 15 contains an article explaining how to hive bees upstairs. My device (see engraving) is an altogether different one, and I will explain to you how I use it, and I know it works.

I use the James Heddon bottom-board and stand, ½-inch rim on bottom-board, except the front, and 2-inch on side corner. The front I use perforated metal to confine the queen on the combs, and allows the bees free access to the hives; and it furnishes no roosting-place for bees to cluster in the shade. The 2-inch space is furnished with a button which closes this space when the trap is not in use. This trap hangs on the bottom-board by tacking a strip of tin 3 inches long on each end. On the trap is a similar tin which shoves behind, and firmly holds the trap to its place. I use either trap as a queen-catcher, or to hive bees automatically. As a queen-trap I use it as shown, closing the outlet. As a self-hiver, connect the outlet of the trap with the adjoining hive; prepare the hive with one dry comb, if convenient. Even though I have worked hard, and have been determined to get an even full-sized swarm every time in the empty hive, I have not accomplished the object. Yet with this trap, and the man who tells you he can with any trap, it will probably pay you to investigate a little before investing largely. I speak now of hiving on the side. The results I get will vary from one pint to a full-sized swarm going with the queen to the new hive. I don't care which when I use the extra hive. I generally use it for increase; and when I find a stock of bees that has swarmed in my absence (prepared as above) I shake as few or as many bees with the new swarm as desired, and remove the old hive to a new and permanent location.

This work can be done at any time from one hour to four days usually. It must be done before the young queen hatches. If you are a farmer, mechanic, doctor, or preacher, do it any time you have the time to do it.

This arrangement furnishes me positive proof that my queens are cared for, and not returned to the hive to be killed, which will often happen. It furnishes me instant proof that this stock of bees has swarmed and needs attention. Without extra labor I can pass down a row of hives, and each hive tells its own story. You have noticed, probably, that a newly hived swarm of bees works with a will that you will seldom see at any other time; and if I had the time, and not too many bees, I would hive all of my bees by natural swarming, and use the old hive as a feeder to the new one by setting it on one side, in such shape and form as to cause the field bees to return to the old home. I



DIBBLE'S AUTOMATIC SWARMER.

think no other management will produce better results for surplus honey and little or no increase.

Please allow me to go back a little to the upright trap, GLEANINGS, May 15, and say that, if you want a full-sized swarm upstairs with the queen, without any assistance, use your bottom-board between the two hives only, and a hole or a connection in it with perforated metal tacked on. An inch hole is sufficient. If you want every thing in bees upstairs, put a bee-escape in place of the metal. Every bottom ought to be supplied with vent for air, and so arranged as to close when not wanted.

I have studied days and weeks, nights and Sundays included (excuse me; I remember Mr. Root's Sunday thoughts while the minister was preaching—couldn't help it, you know), to perfect a trap or traps that would allow me time to care for bees from home. I expect to keep right on studying; and any skeptic who doubts my being able to do it can get positive proof by sending for a list of free testimonials.

I don't want it understood that I care for my different yards of bees alone, and allow my bees to swarm to their hearts' content. No, sir; I don't do it. It may be a little new, perhaps, but I am preparing now, ready for use, a

COMB-RECEIVER

for every hive of bees. I hang it on the side of an eight-frame hive, with openings between it and the brood hive, so constructed that it is open for queen and bees and all to pass in either apartment, or perforated metal, to separate queens only. If more than one, or close, it entirely separates the comb-receiver from the hive.

I use this comb-receiver for the following purposes: As a feeder, a nucleus hive supplied with bees from the same colony, attached to it or any other. My queens are all mated from them. Every strong stock is a nucleus; every nucleus is a strong stock of bees, using it at any or all times when wanted; and when you don't want them any more, the bees belong to that colony. It needs no extra preparation for uniting or building up nuclei.

I use it to prevent swarming, by taking the comb the queen is on, bees and all, in the receiver when the stock is preparing to swarm; and I hold her there until I care to return her back to the stock she came from, or any other.

I use it to introduce queens or supersede any queen you wish to dispose of. No time is lost in egg-laying; no queens are lost in introducing. If for want of time, or I can't find the queen when exchanging the queen to the comb-receiver, or any other carelessness or absent-mindedness, I am arranging for such emergencies to let the traps return the queen to the receiver. Either trap will do it; and when I have an out-yard marked to return in four days, I know every thing is all right. I can sleep better by knowing it. I know this location. Everybody ought to know his location well enough to know when to expect honey, and about when to proceed as above. At times, when only occasionally a swarm issues, let the trap do the work; time is money, and bee-keepers must adopt new methods if they succeed at the present price of honey.

Bee-keeping is the most enticing business I know any thing about; and I have never known a genuine bee-man to give up the business who ever succeeded in any thing else. He is spoiled for any other occupation.

SUCCESS IN BEE CULTURE.

He who obtains it is the most happy man living. "Blasted Hopes" means the most miserable being living. I have been there, you see. Mr. Root, I suppose it is customary among readers of GLEANINGS who invent or introduce something new, to send you reliable testimony as to the success of their inventions. Allow me to present to you testimonials of reliable men where I keep bees; also my neighbor bee-keepers.

A FEW AFTER-THOUGHTS.

I received a patent, May 3, 1892, for my side trap; patent applied for on upright trap and other things connected with it. When these traps get clogged with hundreds of dead drones, clear them. Several swarms at one time will often all unite and cluster together. I hear of heavy losses of bees all around me. My loss is less than 3 per cent. Young queens out mating will often lead swarms off.

WESLEY DIBBLE.

Middleburgh, Scho. Co., N. Y.

[Mr. Dibble has sent us a number of reports from bee-keepers and friends, testifying to the success of his automatic swarmers. Now, perhaps you would like to know just what *we* think of his swarmers. We have had no experience, and can not at present offer any opinion of any of the swarmers.

Since the foregoing was written we have had a little experience—just a little. We prepared, as mentioned elsewhere, several colonies *a la* Pratt. From one of these a swarm has just come forth. The queen went into the prepared hive below, and finally the bees returned and assembled on the entrance. They act very much disconcerted, however — as if they hadn't been satisfied. Well, we haven't time to tell you how it will "pan out," because Barney, the boss printer, says "this hole" must be filled up *now*, so as to get this form of type on the press in time.]

LADIES' CONVERSAZIONE.

WEWAHITCHKA APIARIES.

AN INTERESTING LETTER FROM MRS. L. HARRISON.

Mr. Alderman had made arrangements for me to visit the company's large apiary, located at the home of Mr. Roberts; and on the morning of April 14th I was driven over to the village of Wewahitchka, where I met Mr. Alderman, who was my companion the rest of the way. This drive of five miles was a delightful one, especially to a Northerner unaccustomed to it. Part of the drive was over the roadbed of the old St. Joe railroad, discarded since the town of St. Joe was destroyed by yellow fever many years ago. Tall trees lined the way each side of the road, covered with semi-tropical verdure, creeping vines, Cherokee roses, etc. Part of the roadbed was peculiar, reminding me of the walks around the Japanese building at Fairmount Park during the Centennial at Philadelphia. They are neither hard nor soft, muddy nor sandy; the wheels of the vehicle did not cut in, but rolled over this soft, springy substance, which words fail me to describe.

Mr. and Mrs. Roberts, and their interesting family of nine children, gave us a cordial reception, and we were soon talking bees as no others can who have no practical knowledge of and love for these industrious insects. Mr. Alderman drove away to another apiary, while I remained and was soon out among the bees. I never saw such a large bee-city before—six hundred colonies, under sheds with upright roofs; two long rows under each one, facing in different directions, with plenty of space between them for the apiarist to work in the shade and not interfere with their flight. Mr. Roberts pointed to a number of hives that were in the partial shade of small oaks, and said that they did the best; and when a grove of small oaks near by were larger, he would place hives among them. These oaks are deciduous trees, and lose their leaves when bees are benefited by the sun's rays. When looking at the hot-beds in GLEANINGS I thought of these bee-sheds, and wondered if it would not be a good idea to cover them with muslin during hot weather, and remove it during the winter months. My observations in the State of Florida were confined from Jan. 9th to the middle of April; and during that time I should have preferred colonies to stand in the sunshine, for there appeared to be such a great difference in the warmth between it and shade. This is the time of the year when bees should be rearing brood in order to be populous when flowers are most abundant.

When this locality is favored with abundant rain it might be an impossibility to overstock it; but for several years it has been dry—last year especially so; for, for four months there was not rain enough to wet a pocket handkerchief, and three more partially so. As the result of this drouth, the water in the tities dried up, and fires ran through them, destroying the titi bushes, which are valuable sources for honey. Frosts the 17th and 18th of March, this spring, destroyed much of the titi bloom, and bees fared poorly, and hives were not populous at the time of my visit.

JUMBO.

I went into the honey-house, and, lo and behold! there he stood—not an elephant, but an extractor that kept ten men busy to feed, and had the capacity of twenty-five barrels per day. It was the Stanley, and had eight baskets. The yield last season was 250 barrels, averaging 340 pounds net. From 340 to 350 barrels is considered a good crop. The trademark for the honey of Alderman & Roberts is orange-bloom, though the surplus is not gathered from orange-blossoms, as this is all consumed in rearing brood, as is also that gathered from titi. Mr. Roberts, who is the practical apiarist of the firm, said that he could get 75 lbs. of extracted honey, when, if he should run for comb honey, only 50 lbs. could be obtained.

TUPELO—SOUR-GUM TREES.

This is the source from which the honey whose trademark is orange-bloom is obtained. The honey is of light straw color, of agreeable flavor, weighing 12 lbs. to the gallon, and does not granulate at the South. *Nyssa aquatica* (water tupelo) and *Nyssa uniflora* (large tupelo) are very numerous in the dead-lakes region. During their blooming, a colony kept upon the scales registered 18 lbs. in one day; then eight, four, and twelve, according as the winds prevailed from the south.

There is a vine called snowvine growing in that locality, which yields much honey. I can not find a description of it in Gray's Botany that I have at hand. I plucked a branch of it from a tree while I was standing on the guards of a steamboat coming up the Apalachicola River.

I regret that I was not able to visit more apiaries in that interesting locality, and ascertain more of its honey resources; but a boat stopped at the landing the following morning, and home was too strong a temptation for me to resist, as there would not be another one to land there for one week.

Bro. Root, if you have to rest next winter, visit Florida, and give us in GLEANINGS some views of that land of flowers, as you have done of California. There is healing in her resinous, piney woods, pure air, and soft water which you like so well; and when you do, may I be there to greet you. MRS. L. HARRISON.

Peoria, Ill.

[My good friend, I have long been watching and waiting for something from you from your Southern home. Be it known unto you, there was very much talk between Mrs. Root and myself in regard to our visit; and I once actually laid the money on the counter for the purchase of two tickets; but something turned up that interrupted the plan. I remember of writing home that we were going to take the cars for Chattahoochee, and ride on the steamer Apalachicola to Wewahitchka. You see, I was going to astonish them by the great places we were visiting—great in name if no other way. Why! your story is not half long enough. You touch upon ever so many things that I am anxious to know about, and I suppose I shall have to go there myself some time and see. I was not before aware that any apiarist or company in the whole of Florida produced 250 barrels of honey in a season. Eighteen pounds a day is certainly enough to make a stir in almost any locality. No wonder home was a temptation. I have never regretted that I did not push on to Florida just then; but I am strongly determined, Providence permitting, to visit Florida and take the Kodak along. I wonder whether we could not make it "catch on" to that resinous perfume you speak of. I should suppose of course, my good friend, you would have been keeping some bees yourself—at least a few—in that land of flowers. By the way, you let out a secret, I fear, when you speak of four months without rain. I think one of the Florida friends told me that it *always* rained down there, winter and summer.] A. I. R.

HOW TO LESSEN THE LABOR OF WOMEN

WHO HAVE SWARMING BEES TO CARE FOR.

If the dishes are washed and immediately replaced upon the table it saves much time, for, when dish-washing time comes, one generally has more time than just before the meal. To keep the table neat and clean, have a frame made of lath, about one foot deep, to keep the cloth that covers the table from getting into the food left on the table. Make the frame so that it will just fit the top of the table, and cover it with some pretty, dark calico that does not fade when washed. The frame should be covered plainly, but there should be a scant frill gathered and sewed around the sides, to hang down a few inches, and all should be fastened to the frame. When the frame is not in use over the table it should be hung upon two hooks on the wall, so that it may not be broken or soiled.

Leave the sugar, butter, salt, pepper, honey, spoons, and such things as are needed each meal, always upon the table. Do not go to the cellar for potatoes each meal, but bring up a large panful at some leisure time, and wash all at once by pouring warm water over them. Let them stand five minutes or so, to soak the dirt loose, then roll them round and round until the dirt is removed. Now with both hands take all out and put them into a large pan that has been punched full of holes, kept for that purpose. If the pan has become rusty from continual use, coat the bottom over with rosin and lard. Not enough lard should be used in the rosin to make it sticky, but just enough to prevent its cracking off. The potatoes will need two washings, and should be left in the pan to drain over an old pail until done dripping.

The washings may be done on rainy or dark days, when the bees choose to stay at home. The underclothes, sheets, and towels may be used without ironing, rather than overwork, or rather than let the bees go to the woods or swarm when there is no one to care for them; for if one keeps bees it pays to take care of them in the proper time. It takes the beauty all out of the pursuit to make it work that is looked after only when all other work is done.

If you give the children a penny or more every time they get stung while helping with the bees, most of them will be ready to run the risk of stings, especially if they are carefully protected against them. My little adopted girl used to make a great fuss over a sting; but when I give her a penny for each one she refuses to have her hands covered, as she says she can work easier without the covering. But it is the pennies she cares for more than the amount of work done. Children, like grown folks, like money of their own, and it is better for them to earn it than to give it to them. If they are paid 10 cents or more for every swarm they detect coming out when no one else is watching, they will be quite attentive in watching for swarms.

The bread may be set in the evening, so that it may be baked before swarming time next day. Many prefer setting the bread at night, thinking it makes better bread.

FOOD FOR THE OUT-APIARY.

Much of this may be cooked while getting breakfast. Just cook a little more—a little more coffee, a few more potatoes, to make into potato-balls by running them through the potato-masher advertised in GLEANINGS; season them with a little sugar, pepper, butter, and salt. They are nice cold, rolled into balls for the out-apiary dinner, or slowly fried in a little butter or fat for the home dinner. Eggs and meat may be boiled the evening before, which will answer just as well for the home dinner as for the out-apiary.

When much extra work is expected, as swarming or harvesting, it pays to be liberal with the pennies for the children, to induce them to save steps for their parents, and thus tide them over the hard places, rather than for either of the parents to overwork; for if either gets sick just then it makes it hard all around, besides the great loss sometimes sustained. Leave as little to be done in the mornings as possible. If there is time in the evening, pick the berries. Take the children along, and, if they can't be induced in any other way, reward them a little for picking. Some object to paying children for work done. Perhaps it is not best to do so, except to get as much help as possible in these special times of extra labor.

Sweeping and dusting spare rooms, scrubbing porches and walks, may be done in the evenings, if there is spare time; if not, they had better be left undone than to overwork. It is very little our walks get scrubbed in swarming time, except with honey. Such work can better be neglected than cooking, for it helps one to be good-natured to have appetizing food; and of all times when I appreciate good dinners, it is when I have been wearied and worried catching swarms. It helps to settle the nerves, which helps to keep cool-headed. And yet one had better live very plainly than to overwork, *especially during swarming time*, remembering that swarming comes only once in three or four years, or at most for three weeks once in a year, unless it be a year like 1882, when we had one or more swarms every day from the first of June to the middle of September, except about a week in the first of August.

How every thing goes wrong if one allows himself or herself to get worried and excited, or out of patience! It would seem that all the bees were intending to come out of the hives at once, and to have things their own way. Of all places in the world, it seems to work the worst to lose one's patience with the bees. I remember watching one of our helpers as he was working alone with the bees. As they flew at him he would strike at them with the smoker. The more he struck at them, the more enraged they became. I don't know how it would have turned out had I not told him that would ruin any colony, and proceeded to help him finish the colony and close the hive. After that I never trusted him alone with a hive of bees.

A hammock or two in each apiary, or, what I like better, a bench with a raised head-board and a quilt folded and spread over it, on which to rest whenever there is time, is a great comfort, as has been spoken of before in the bee-journals. MRS. L. C. AXTELL.

Roseville, Illinois.

EMPTY COMBS.

HOW TO CARE FOR THEM WHEN NOT IN USE.

We are especially interested this year in taking care of an unusual number of extra combs—those that are thrown on our hands to care for by having so many colonies die, and it is no small task. We have considerably more than a thousand to so care for. Heretofore we have given our extra combs to the bees to take care of. Filling a hive with these combs, we placed them under a strong colony, and the bees would take the best of care of them. Sometimes one colony would take care of several hives of combs placed under, and I know of no better way to care for them, providing you have plenty of bees. But taking care of such a number of extra combs must be some detriment to the bees, as it gives them just so much extra work. This year we are very anxious to make the most we can of what bees we have left, so we are going to try to take care of some of the combs ourselves.

In the shop cellar we nailed lath on each side of the joists, near the lower edge. On this lath we hung the frames. There not being room to hang them straight across, they were hung on a slant. About an inch space was left between them. If there was to be any great amount of jarring they might not be very secure, as they have only the thickness of the lath, about ⅜ of an inch, to hang on; and, being hung on a slant, they will be more easily knocked down. There are several advantages in having them hung up in this way. There is not so much danger of their being injured by mice; they are entirely out of the way, as they do not take up any available room, and are very easily got at when wanted. With a free circulation of air, and the coolness of the cellar, the worms will not get at them so early nor work so rapidly. They are in such condition that they are easily examined, and we will keep close watch of them; and the first trace of worms that we see we will be on hand with brimstone, as they are in excellent shape to fumigate. It is important to take them when the worms are small; for after they are full grown they will stand an immense amount of brimstone without seeming injury. But there is one objection. The combs will not be nearly so nice and sweet as when kept by the bees, and, with any reasonable proportion between the bees and combs, I would much rather leave them to the tender mercies of the bees. EMMA WILSON.

Marengo, Ill., June 2.

SELF-HIVERS.

SOME RECENT IMPROVEMENTS AND INVENTIONS.

I have been anxiously watching the various bee-papers for any further suggestions or improvements in self-hivers, to make them more nearly perfect. We are certainly making rapid progress on this line; but, so far, the perfect swarm-hiver is still in the future. Mr. Pratt has made some excellent suggestions in his last plan—that of putting the hive expected to swarm on top of the hive or section-cases, to receive the swarm. The bees are to pass through perforated zinc, under an escape-board, with a place for the queen to escape into the empty hive, at the apex of the V-shaped escape. The small perforated zinc guard in his original swarmer is replaced by a sheet covering the entire end of an open-end section-case. The bees have not so far to travel as in his other one, and he has lessened the trouble from drones a little, but not much. No matter how carefully the combs may be selected, some drones will be produced; and there is no chance for a single one to get outside the hives. It is true, the drones will escape into the empty hive, and will speedily die there. These dead drones are very objectionable to the workers, and they will try to pull them through the perforations in great numbers. It will be rather difficult to clean the receiving hives of them, as the swarming hives are all on top, and it would certainly involve lots of heavy lifting, and disturbing the bees. Then suppose the bees swarm, and hive themselves, just as Mr. Pratt says they will; would not such swarm work back through the perforated escape to the brood-combs above, leaving only the queen and a handful of drones? As hivers will likely prove of the greatest value in running out-apiaries, one can never tell what hives have swarmed, without examining each empty hive. Possibly one could see through the perforations in the end of the super. There are many cases of superseding queens during a season, that are liable to cause trouble if one is not constantly on the watch for dead queens when cleaning out the drones.

Mr. Alley has made some progress with his swarmer lately. Now, if the bees will only do as he says they will, it is probable that he has taken a step in the right direction. By the way, Mr. A. has switched around a good deal on this self-hiver question. If his self-hiving arrangement would secure 99 per cent of all swarms, what was the use of all this? Again, if he secured two nice swarms by my device, why does he claim that I can not secure any? He says that my plan is a failure; yet I ran two apiaries, which can both be considered out-apiaries, as I could be at only one place at a time, hiving some 50 swarms by means of my hiver, and, after manipulation, I had over 200 hives, and I do not think I lost a single swarm. Has Mr. Alley or any one else tried his swarmer on a like scale, with equal results? Mr. A. now uses a "decoy" hive in front of the one expected to swarm, *a la* Pratt. For a swarmer he has fallen back on his drone-trap, provided with a piece of drone-excluding, queen-escaping zinc, that is to allow the queen, after being trapped with the drones, to escape into the decoy hive; but what is to prevent her from running back into the original hive? Then, too, when we remember that queens differ greatly as to size at swarming time, is not the queen-passing, drone-excluding zinc a doubtful point? Queens, too, have a way of trying to go through the perforations toward the sunlight, when trapped, and not into strange dark places. The empty comb in the decoy will help some; but if left too long, would it not become infested with moth? To provide several hundred decoy hives of an old pattern is certainly quite an objection.

I do not write this in a fault-finding, criticising spirit, but only to point out some of the difficulties that have suggested themselves in my own experience. Both Mr. Alley and Mr. Pratt deserve great credit for their efforts in this direction, even if they do think they must have a patent on it.

Well, after considering all the various plans of self-hivers so far published, I have about concluded to stick to my own plan. I will modify it somewhat, using wire cloth on the lower swarmer, except two rows of perforations. The lower frame will also be made large enough to include the section-case. There will be three large cones for queen and drones, with two rows of worker perforations between. The upper frame will be all perforated zinc, giving free access to the bees returning from swarming, while the lower will become temporarily clogged. A comb or two will be tried in the empty hives, as an additional attraction. Judging from my past year's experience, *I know* that this will give me swarms that can be seen at a glance, and then fixed up to suit me. I prefer to make the new colony quite strong, so that there will be no cessation of work in the supers. This can be done only by brushing off enough bees from the combs of the swarming hive, or using my bee-escape plan.

That bee-escape of Larrabee's is a good one, as I had a very similar arrangement two years ago. It would work a little better without that extra curve at the apex of the V. Bees are shy of long narrow passages. It would also be more rapid if two openings were left for the bees to get in, toward the ends of the board, with one space to get out, at the center. But the fact that it is not removable from the board is an objection. I have lately seen one of the Hastings escapes, and think it an improvement on the Porter. This one, however, was faulty in construction, as the exits were hardly large enough to let a worker pass. What would become of the drones when trying to get out?

Milan, Ill., May 11. C. H. Dibbern.

THE PRATT AUTOMATIC SWARMER.

A CRITICISM ON THE DEVICE SHOWN ON PAGE 318, MAY 1.

Last year I used thirty of the Pratt swarmers on almost the same plan, putting the old swarm above the new hive, with the queen-excluding bee-escape between them, and excluding zinc at the lower hive-entrance. The reason that this does not work is, that a bee-escape under the brood-nest works very differently from one over it, especially when it is used for the entrance to the hive. In my experiment I used three escapes between each pair of hives, and yet they would clog almost every time. The escape would have to be watched and cleaned nearly every day, to insure success. This would be a large task with fifty or a hundred hivers. This is no theory—I know from experiment.

If there is passage sufficient for the swarm to issue from the upper hive into the lower, there will certainly be passage enough for them to get back again after they have been hived, and it seems to me that this would be the most natural thing for them to do, carrying the supplies above the cluster, tempted by the bees and brood above. One would have to be on hand to remove them very soon after they had swarmed.

The hiver that I sent you meets all the points claimed by Mr. Pratt, and avoids all the objections; and yet it has not been tried to hive a swarm, so it is at least partly theory; but if it clogs, it can be cleaned in half a minute. I should not offer them for sale until I had proven them. The reason that I sent it to you was, that you might criticise it; and, if you thought best, let others do the same; also, that they might improve upon it.

Geo. H. Sprague.

Haskinville, N. Y., May 7.

[The self-hiver that Mr. Sprague says he sent failed to come to hand. As we have had no practical experience with the hiver in question, nor, in fact, with any of them, we forwarded Mr. Sprague's letter to Mr. Pratt. His subjoined reply possibly suggests the cause of the trouble.]

In the above, Mr. Sprague does not give a clew as to how his queen-excluding escapes were attached; but I should judge that they simply led from the holes in the thin board directly into a dark chamber, and, there being no provision for light, they became clogged.

In my directions, where I tell how to attach the Pratt swarmer to any hive having a loose bottom, I speak of this, and it is a very important matter. If these directions are strictly followed there will be no fear of the escape becoming clogged. For the benefit of your readers I will give further directions here.

First, take any kind of thin board that will cover your hive-bodies (a bee-escape board will do) and nail strips of wood all around the outer edge of one side so as to form a bee-space from three-fourths of an inch up to seven-eighths of an inch deep. Now lay the escape into this bee-space, zinc up, and its apex pointing to one end within an inch of the end cleat; and after you have marked the position it is to occupy, remove it and cut several holes through the thin board so they will all come inside the escape, but not too far up into where the escape begins to taper. The more holes you can get in, the better. It would do no harm if one large hole were made the size of the base of the escape. Place the escape in position, and fix it to the thin board with a few wire nails. Provide an opening through an end cleat, directly opposite the apex of the escape, at least four inches long, and cover it with a piece of excluding metal. By thus admitting light to the opening of the escape, the bees are attracted there, and they will keep it clear of all rubbish. Plenty of light and air let into the escape is necessary for success in keeping it clear.

The readers, of course, understand that the escape-board is placed on top of the new hive, escape down, and apex pointing toward the front. The colony expected to swarm is then set on the escape-board.

E. L. Pratt.

Beverly, Mass.

SWARMING CONTROLLED.

INCREASE PREVENTED OR REGULATED; QUEENS RESTRICTED.

On page 282 is a cut of a bee-escape used by J. H. Larrabee. My queen-escape and excluding-board is made in a similar manner, except that I use perforated zinc in place of the wire, when a colony is expected to swarm. A set of combs, frames filled with foundation or starters, as I have them, or the particular line I am working on requires, is placed under the colony, with the above board between, the entrance being closed with queen-excluding material in some shape. A queen and drone trap answers very well. The hive now consists of two parts. That above the board contains the bees, brood, sections, etc.; that below, a set of frames with comb, starters, or foundation, as the case may be.

When the swarm issues, the queen remains in the lower part; the bees return and go to work there; often the queen will go below, and that part be occupied without a swarm issuing. The presence of eggs below shows that the queen is there. If I desire increase, I remove the top part, about the seventh day from the time I have reason to suppose the lower part was occupied, to a new stand, doing so at a time when the bees are working strongly. This leaves all the field bees and many young ones at the old stand, leaving them in shape to do good work. They are given surplus room accordingly, while the part removed is weakened enough to prevent any after-swarms. The queen-escape and excluding-board remain under them; a half-set of frames is placed under it; the queen becomes fertile, the colony builds up in good shape for winter; as the brood finishes hatching, the set of frames above the board is filled with fine honey for extracting. This can be depended on with certainty—a gain of, say, 50 lbs. by this management, as otherwise no surplus would be stored above the frames.

In place of adding a full set of frames, as mentioned in the first instance above, I often add only a half or third set in this manner, restricting the queen and reducing the number of eggs laid. It does not injure the queen like caging. In this case, room is added at the same time above the board and under the upper set of frames; in this the surplus is stored. If no increase is wanted, enough surplus room is added above the board and under the upper set of frames to last about two weeks. By this time one or more queens will have hatched out and passed down through the board, and the "best one" will occupy the hive. The excluding material is now removed from the entrance, so that, if it is a young queen, she can go out and mate. If a queen and drone trap is used, all undesirable drones can be killed. The zinc used in making the board should be wide enough to allow of free passage and ventilation; if too wide, the bees seem to feel that it is the same old hive, and continue to swarm, or to sulk; if the zinc used is not too wide, the queen will almost always go below, and young queens be reared above. This of itself is a cheap, convenient, and very efficient way of requeening. The fittest will survive, and by this natural selection we get the best queens obtainable, reared under the natural impulse, in strong colonies, and at no extra cost, either by reason of work done by ourselves, or by loss of work occasioned to the bees. After all danger of swarming is over, the board is removed and a common excluder put in its place.

On page 545 of the *American Bee Journal* for April 21, 1892, G. W. Demaree tells how to prevent swarming by placing the queen on a set of frames under a queen-excluder, etc. The use of the queen-escape and excluding-board not only saves the work of finding the queen, etc., but gives the bees a chance to put a younger and better queen in her place.

The honey is taken off by the aid of escapes. There is a great advance over the methods in use only a few years ago—no brushing of bees in the hot sun; no hunting for queens; no clipping of queens' wings; no loss by absconding swarms; no hiving the same when they are doubled up three or four deep; and, by no means least, no loss of honey incident to interrupting and exciting the bees during these manipulations; on the contrary, some boards are put between cases, some empty cases added, then some more boards, and the full cases are taken off. This is progress, more than many thought possible, *and the end is not yet.*

Berlin, Mo., May 13. GEO. R. WELLER.

HOW TO MAKE SWARMS CLUSTER IN ONE OR TWO PLACES.

O. R. COE, NOW OF WINDHAM, N. Y., TELLS HOW TO DO IT.

Friend Root: — In the matter of hiving swarms I can now swing my hat, and cry "Eureka!" I have no further use for hiving-box and enamel-cloth apron that have served me so well in the past. This is how I do it now: I have several boxes made as Doolittle recommends in making nucleus colonies in which he confines the bees. Mine are made about six inches square, and 13 inches long. Two sides are made of wire cloth, one of which I can remove at pleasure. I have a 3½-inch hole on top of the box, in which the funnel fits, and through which I shake the bees into the box. Doolittle recommends taking combs with bees on, and placing them outside of the hive to let the bees fill themselves with honey; but I have found a better way. On the inside of the board that forms the bottom of the box I nail four strips ⅜ inch square, so as to make a little trough 3 inches square and ⅜ inch deep; and over this trough, in the top of the box, I make a 1-inch hole, and nail wire cloth over it on the inside. Now, when the bees are in the boxes I can fill them with honey by pouring honey through the 1-inch hole, so that it will fill the trough, and in that way fill all of the bees with honey, by using a dozen boxes, quicker than the bees will fill themselves from the comb; at least, my part is done quicker, and the bees can take up the honey at their leisure. This matter of having the bees filled with honey in some way is important, as I have had more than half of the confined bees die in less than ten hours, in a cage into which the bees had been shaken from the combs without letting them fill their honey-sacs, or feeding them.

Every morning, about 7:30 or 8 o'clock, I shake bees into two boxes (taking them from upper stories over queen-excluders), pour in a little honey, and hang them from tripods by a string. These I place on either side of my apiary, and the bees just howl to get out, which attracts swarms to them; and I get 14 or 15 swarms to cluster on them without touching them. For those swarms that don't go to the place where the confined bees hang, I take one of the cages of bees, slip a string over one tine of a potato-hook, walk out with it to the place where the swarm is flying thickest, and in a few minutes the bees will begin to cluster on the cage. Then I walk back and lead the bees to the place where the tripod is, and let the whole swarm settle on it. I now prepare the hive for them by placing an empty story on the stand where I am to hive them. When the swarm is all settled on the cage, or box that has the confined bees in, I take hold of the string and carry the swarm to the place where I am to hive them. I now sprinkle the bees, and also the inside of the empty hive, with water that is one-fourth honey, using a brush-broom for the purpose. Then I shake the bees into the empty hive, and place the hive over them. I think I have hived swarms in this way in one minute, and not had over 50 bees fly. This preventing bees flying and making a great commotion that is likely to call any swarm just issuing, I successfully accomplish by this method; and I tell you there is some poetry in seeing swarm after swarm come out and begin to cluster on the cage before they are all out of the parent hive, while I, with a pail of sweetened water and brush-broom, keep back all other swarms, if any are likely to issue, until they are settled on the cage, and then have nothing to do but take hold of the string that suspends the cage, carry them to an empty story, shake them into it, and place their hive over them; then I return the cage to its place, ready for another swarm. O. R. COE.

Fort Collins, Col., July 7.

[As will be seen from the address above, this article was written last summer while Mr. Coe was in Colorado; but on account of the pressure of matter we were not then able to give it an insertion, and therefore held it over until the proper season this year. If we understand Mr. Coe correctly, his two wire-cloth boxes or cages of bees were used as decoys; and these decoys were so perfect that they attracted the larger part of all the swarms in the air. This same plan was, years ago, practiced and recommended by L. L. Langstroth. Why more has not been made of it we can not say.]

RAMBLE NO. 61.

ONE OF VENTURA'S GREAT BEE-MEN.

A few years ago a young man presented himself at Mr. Wilkin's apiary, desiring to learn the business of bee culture as practiced in California. He had journeyed all the way from New York State, and had but a few dimes left in his pocket. Mr. Wilkin then allowed his hair and beard to grow to great length, as a substitute for a bee-veil; and the wild appearance of the man, and the still wilder surroundings of rocky, mountainous country, gave the youth, who had been used to different scenes, a little touch of homesickness. But this was only momentary, for the kindly manner of Mr. Wilkin and family soon made the place a home; and he resolutely took the position assigned to him, and performed his duties so faithfully that it was but a comparatively short time until he graduated from the position of helper to that of owner of an apiary. He is now owner of over 700 colonies, in two apiaries, and perhaps ere this article is read he will have the third apiary and 1000 colonies. Allow me to introduce to you Mr. M. H. Mendelson, of Ventura.

Southern California has been much infested with foul brood, and heroic measures are taken to stamp out the disease. As before stated, foul-brood inspectors are appointed, and much depends upon their thoroughness in abating the disease. Mr. Mendelson is foul-brood inspector for his district, and that there is not much of the disease visible speaks well for the energy of the officer.

Mr. M.'s largest apiary is seven miles from Ventura, and I did not decline an invitation to mount a road-cart, and go out with him. A portion of the journey is very delightful, riding past orchard after orchard of English walnuts and fruits of many kinds. There are many handsome residences in Ventura, surrounded with grounds which in point of beauty approach your ideal of what an Eden would be.

A short distance from Ventura is a very old and very large grapevine. In Santa Barbara (the county adjoining Ventura) is the largest grapevine in the United States, being 12 inches in diameter, and the product of which is often four tons of grapes. This Ventura vine is the next largest, is fully ten inches in diameter, and spreads over a trellis fully 40 feet square. The product is also in proportion to its size.

If Ventura has not the largest vine, it boasts of the largest rose-tree in the United States. The body is a foot in diameter, and the estimated number of roses on it at one time is 10,000. California is eminently the land of the rose. The climbing varieties will cover a cottage; and what an enchanting sight when the blossoms burst forth in all their regal beauty!

Mr. M.'s apiary is over a mile from the highway, and, instead of being amid rocky canyons, it seemed like going into somebody's extensive back pasture, and the idea was emphasized when we encountered a large herd of cattle. While passing several large oak-trees Mr. M. pointed out here and there decoy hives he had distributed, with which he had caught twenty-three swarms.

M. H. MENDELSON, VENTURA, CAL.

Another object of interest was an asphaltum-mine, where quantities of the pure material are obtained by tunneling into the side of the mountain. Tar-springs are also not far away, but they have not yet become noted as a summer resort or for bathing purposes.

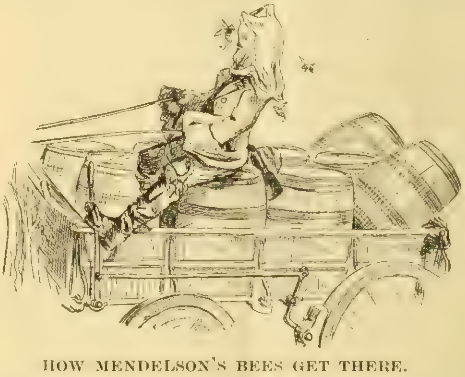
Upon arriving at the apiary a glance was sufficient to show that the owner was a careful, methodical man, and had learned his trade well; for, next to Mr. McIntyre's apiary, it was in all appointments the best-regulated apiary I had seen. The fine photo I present to you shows, as very few photos do or can, owing to the impossibility of getting a good point of view, every detail of a model California apiary.

This apiary contains 400 swarms in L. hives, and is worked for extracted honey. The first building at the right is a little workroom well supplied with tools. The next little building is the extracting-room. The cart in front has room for a large load of hives, which are passed to the operator inside. A long galvanized-iron pipe, two inches in diameter, conducts the honey to the strong wooden ripening-tank, which has storage capacity for eight tons of honey, and generally affords sufficient storage until it ripens enough to draw into cans, which are piled at the end of the tank, when it can be filled again. But knowing the possibilities of the country for honey, and wishing to have his dish right side up, Mr. M. has put in an emergency tank at the corner of the extracting-room. This is made of galvanized iron, and will accommodate enough drops of honey to weigh over ten tons. The entire storage capacity in the two tanks and various other utensils is about 27 tons. Two sun wax-extractors take care of all the cappings and odds and ends of wax. Mr. M. is seen manipulating a hive near the small wax-extractor. Root's bee-tent occupies a prominent position, and received an unqualified indorsement from the proprietor. The large pile of empty hives neatly painted are also ready for an emergency. As to the nice long ladder, I don't know what he uses it for, unless it is to get into the manhole in the top of his emergency tank. If not used for honey, the tank is not idle; water is caught from the buildings during the rainy season, and stored for irrigating and drinking purposes. The Rambler drank water that had been in it over nine months, still it was sweet, refreshing, and cool.

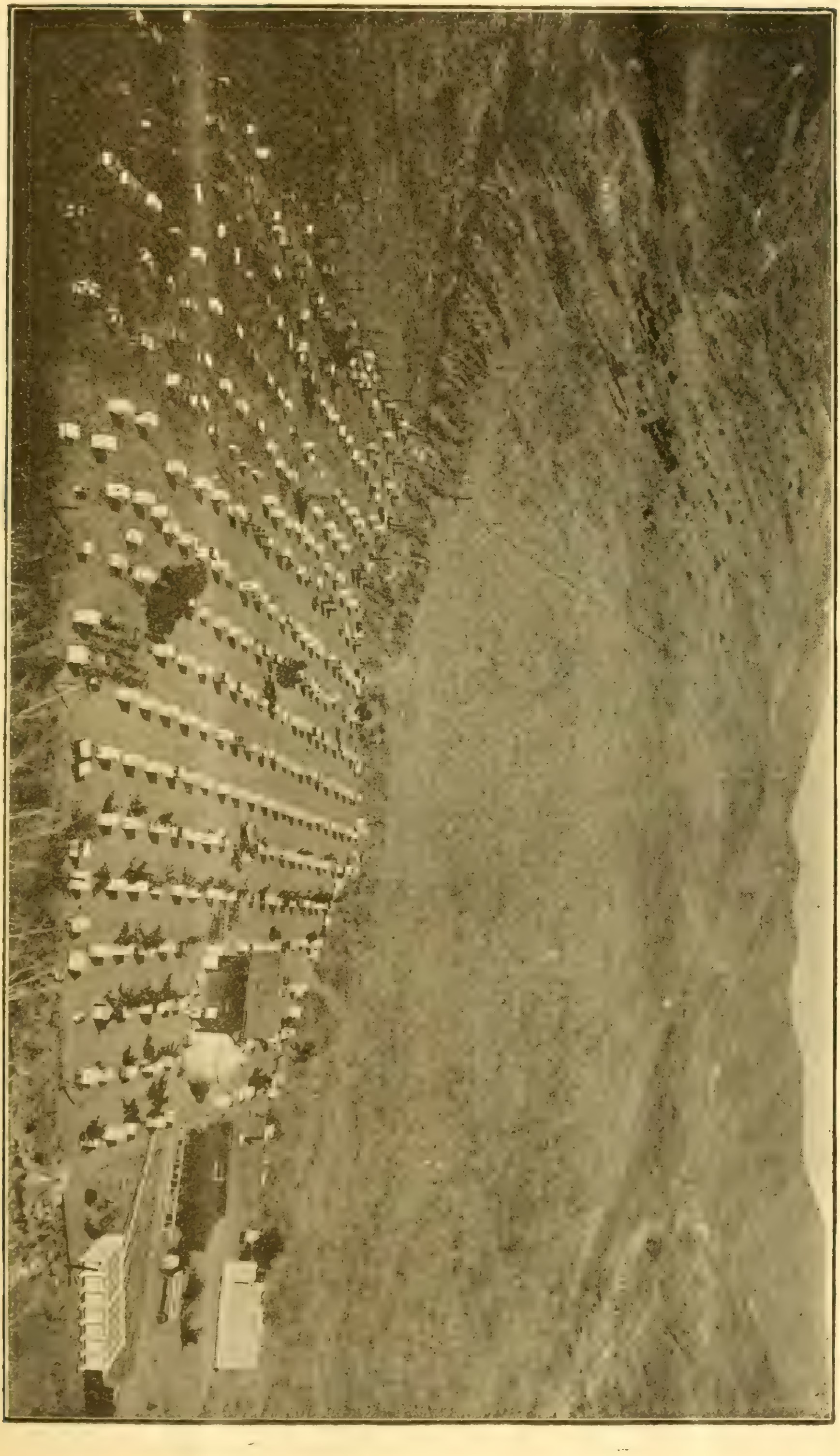
A few grapevines, also quite a variety of rose-bushes, are set out. In the latter line Mr. M. is something of an enthusiast. Around the wooden tank is a valuable nursery of orange seedlings. While looking out for the profits, he finds pleasure in the things of beauty.

For storage tanks, galvanized iron is used almost exclusively in California; and if there are any deleterious effects on honey stored in them, California bee-keepers should have found it out before this time. I think the recent advice of our English friends and the *American Bee Journal* will scarcely be listened to.

Although Mr. M. is a careful breeder of his stock, much of it is bred, I believe, from Heddon's strain. The bees were inclined to follow us around, and veils were resorted to. Not a few California bee-keepers claim that bees here are more vindictive than in the East. Mr. McIntyre's large apiary is near a public highway where there is much heavy teaming to and from stone-quarries and oil-wells, but his bees seldom molest passing men or horses. Mr. Mendelson, on the contrary, was compelled to move an apiary from near a public road. People driving in light vehicles learned to get by on the run, while teamsters with loads put burlap sacks over their heads. One teamster thought himself thus duly protected; but a small unobserved hole in the sack, in front of his nose, was too much of an inducement to an angry bee, and, to the man's surprise and consternation, this important organ was punctur-



HOW MENDELSON'S BEES GET THERE.



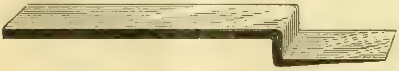
M. H. MENDELSON'S APIARY, VENTURA, CALIFORNIA.

ed and materially enlarged in size. From the jocose way in which Mr. M. related the incident, he had nearly enough fun out of it to compensate for removing the apiary.

In many other apiaries I have found the propensity to sting exceedingly rampant, and I have come to the positive conclusion that California bee-keepers need a new and vindictive smoker—one that will run by clockwork and send a continuous stream of smoke into the hive. In many cases a more careful breeding would overcome this propensity, and a more thorough warfare upon nightly visitors, such as skunks and other small animals, would have a further toning influence.

I found in Mr. M.'s apiary the gravity strainer, which is used quite generally by bee-keepers in Ventura County. This strainer was described and illustrated on page 248, Vol. XVIII., of GLEANINGS, as used and improved by Mr. McIntyre. The strainer can not clog, and the extractor does not have to be stopped in order to let the honey get out of the way. The inventor of it ought to be known and receive the award of a medal.

Another instrument of general use is a combined lever, chisel, and scraper. The nearest approach to it I ever saw in the East was a piece of an old wagon-spring. The usual length of this tool is 8 or 10 inches, and 1½ inches wide. Mr. M.'s was longer, and provided with a handle.



CHISEL, LEVER, AND SCRAPER.

A commodious cabin is located near the apiary, or out of cross bee-range, where Mr. M. and his helpers live during the honey season.

In Ventura I found another manufacturer of reversible honey-extractors, Mr. W. E. Leach. There are several styles of these extractors, and California inventors are busy at work evolving still more efficient machines.

I found Mr. Mendelson a very agreeable traveling companion, and he seemed to be the favorite with all the boys and girls. The young ladies beamed on him with wistful glances, but seemingly to no purpose. That his days may be long upon the land, and full of continued success, is the wish of the RAMBLER.

[Friend Rambler, I am very glad indeed that you took it into your head to introduce to our readers our good friend Mendelson. As it was not the time for honey when I was there, I did not see much of him except indoors; and I hope he will excuse me for saying that he seemed to be so much of a polished gentleman that I wondered how he got "down to business" enough to manage his large apiaries successfully. If I am not mistaken, somebody told me that he is a Jew by birth. Well, if that is true then I have a warmer feeling toward the whole tribe of Israelites than I should have had, had I not met friend M. Yes, I noticed how kindly the young ladies all seemed to feel toward him; but at the same time they seemed to look up to him as one who was worthy of their highest respect and esteem. The view you give is certainly a good one, and it indicates that he has not hesitated to invest money in commodious appliances, and appliances, too, that are adequate to taking care of ton after ton when the honey comes.

GALVANIZED IRON FOR RECEPTACLES FOR FOOD AND DRINK.

Yes, friend R., I am well aware that California people are in the habit of ignoring the dangers and poisonous tendency of galvanized iron. We need not waste time in argument, however. Just put a little honey, or even water, in a shallow galvanized-iron pan, and let it stand for two or three days; then take a good dose of the honey or an ordinary drink of the water, and see if it does not make you sick. If the honey or water does not stand long in the utensil, or if the quantity stored is very large compared to the surface exposed to the liquid, the poison will be too much diluted to do harm. A teacupful of ordinary hard drinking-water left in the bottom of a drinking tank made of galvanized iron made me so sick that I did not care to try the experiment a second time, and the water stood in the tank only over night. The same experiment was tried after the same tank was lined with tin, and there was no bad taste to the water nor any unpleasant symptom. Galvanized iron, in one sense, does not rust; therefore people generally feel sure that it is clean, pure, and wholesome. But this property it has of keeping bright and clean is just because of the fact that the surface is being constantly and evenly dissolved by liquids or by rain. A cake of ice will keep clean in the same way, because it is constantly melting away. Well, now, this surface that is melting away is being constantly dissolved in the liquid with which it comes in contact. Ordinarily the zinc compound is in too small quantity or too much diluted to do any harm. But the effects of zinc poisoning will always be too vivid in my mind to let me feel easy when I see galvanized iron used so indiscriminately for articles of food and drink. Using a galvanized-iron tank for holding a large quantity of drinking-water may not make the water perceptibly unwholesome; and it is quite likely that different kinds of water —that is, water from different wells or cisterns —might attack the zinc covering with more or less energy, according to the mineral salts found in the water. Prof. Cook can tell you of cases of poisoning from stirring off maple sugar in a galvanized-iron pan.] A. I. R.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

DISCOURAGED FARMERS AND BEE-KEEPERS IN ILLINOIS.

I am almost discouraged with bee-keeping, and wish, through GLEANINGS, to inquire how many others there are to sympathize with, for I find there are many that have suffered in losses as heavily as myself. I have lost fully one-third, and fear I have not got through yet. I find the majority of my losses are confined principally to the black bees, Italians being stronger. The disease was dysentery, and I am inclined to attribute the whole matter to honey-dew, for I never suffered such losses before. All can have all the honey-dew they want. I am not in want of any. Weather is very wet, and the season backward—rain, rain, almost every day. Farmers are discouraged; much corn to be planted yet. A. Y. BALDWIN.

De Kalb, Ill., June 1.

A BIG REPORT FROM A YOUNG BEE-KEEPER IN CUBA; 77,000 LBS. OF HONEY AS ONE SEASON'S CROP.

I am not quite 21 years old, and have gotten, the past season, 77,000 lbs. of honey, which, if I am correct, is the largest amount ever taken by one apiarist in Cuba. F. O. SOMERFORD.

San Miguel, Cuba, May 15.

AUSTRALIA AND THE WORLD'S FAIR, AGAIN.

Our association here intends sending an exhibit of honey to the World's Fair, where it will be entered for competition with a view of seeing how our products compare with those of America. Our intention is, to present the new Department of Agriculture in the U. S. with the exhibit when the fair is over, to form a nucleus of their apicultural museum, and we hope in return to receive a small sample of American honeys for display in the technological museum here. R. PATTEN.

Balwarra, West Maitland, N. S. W., Apr. 16.

DROWNED IN HONEY IN WINTER; A SWEET DEATH.

Nine of my colonies of bees drowned in honey last winter. The combs made last summer were so white and tender they could not hold the honey, and so it ran out among the bees and drowned them. The honey ran out the entrance on to the ground in tinfuls. Old black combs are the best to winter bees on.

Keating, Pa., May 5. S. NELSON.

[This occurrence is very unusual. It looks like a case of combs built off from paraffine foundation.]

ALFALFA IN DIFFERENT LOCATIONS.

I see in GLEANINGS that some one says alfalfa is allowed to blossom nicely before cutting. In this country it is cut as soon as it gets nicely in bloom, and just as it is getting to do the bees some good; but there are generally corners and round ditches that don't get cut. I have to feed, up to alfalfa bloom. I am mowing some alfalfa for soiling now. It is splendid cow feed. ROBT. P. LANCHESTER.

Bliss, Idaho, May 10.

SEALED COVERS AND ABSORBENTS.

I winter outdoors in double-walled hives—Langstroth and the Bristol, or Manum hive. I have tried tight honey-board, cotton cloth, enamel cloth, etc., but none were satisfactory. I have now adopted this plan: I take my honey-boards, bore a 3-inch hole out, and nail wire cloth on the under side; look over my bees as early as I can after surplus ends, and then let them stick down the honey-board, if they please, with the enamel cloth over the hole until time to pack them for winter; then I take a burlap bag, put in ¾ of a bushel of dry sawdust, take off the cloth that is over the hole, put on the bag, well tucked down, and the job is done until spring. I have practiced this way for a number of years, with good success; and the average loss is far less than many of my neighbors have had. P. D. PERCIVAL.

North Ferrisburgh, Vt., May 21.

THE INDUSTRIAL MISSIONARY ASSOCIATION OF ALABAMA.

We own a town (a little one) now, and I am postmaster, freight agent, store-keeper, justice of the peace, general manager of some 3000 acres of farming and timber land (with 40 mules and 100 hands at work); run a sawmill, grist-mill, blacksmith shop, etc. Of course, I do this largely through assistants, as I am also general missionary, and conduct services at two points every Sunday, and superintend several other churches and schools. The late widening of our work gives us a very extensive influence in every department of their well-being. Send me two smokers for colored men that have left off tobacco; I will be responsible for them.

Saltmarsh, Fla., May 13. C. B. CURTISS.

TOBACCO COLUMN.

CONDITIONS UNDER WHICH WE GIVE SMOKERS TO PERSONS WHO STOP USING TOBACCO.

First, the candidate must be one of those who have given up tobacco in consequence of what he has seen and read in this department. Second, he promises to pay for the smoker should he ever resume the use of tobacco in any form, after receiving the smoker. Third, he must be a subscriber to GLEANINGS. Any subscriber may, however, have smokers sent to neighbors or personal acquaintances whom he has labored with on the matter of tobacco-using, providing he give us his pledge that, if the one who receives the smoker ever uses tobacco again, he (the subscriber) will pay for the smoker. The one who receives the smoker in this case need not be a subscriber to GLEANINGS, though we greatly prefer that he be one, because we think he would be strengthened by reading the testimonials from time to time in regard to this matter. The full name and address of every one who makes the promise must be furnished for publication.

Please send me a smoker, and I will stop short off my tobacco, and will pay for the smoker if I ever use tobacco again. H. HOLLER.

Newark, O., Mar. 18.

Mr. J. E. Hudgins promises to quit using tobacco if you will send him a smoker, and I agree to pay for it if he breaks his pledge.

Anneville, Texas, March 24. G. H. REED.

I have made a pledge to quit the use of Tobacco since reading GLEANINGS. Send the smoker; and if I break the pledge I will pay.

Jug Tavern, Ga., April 6. H. S. PERRY.

Please send one smoker to Thomas M. Todd. He has, he says, quit the use of tobacco forever. I will pay if he returns to "the mire."

JAMES A. TODD.

Payson, Utah Co., Utah, April 16.

The dollar is to pay for a smoker that you sent to Anthony Gruell for quitting smoking. He has gone to smoking, so I pay for the smoker. J. W. NICODEMUS.

Newcomerstown, Ohio, Feb. 25.

Please send a smoker to C. F. Bassett. He said if you would do so he would not use any more tobacco. If he does I will pay for the smoker. MRS. CARRIE BASSETT.

Hillsdale, Ind., April 8.

Please send a smoker to my husband, M. D. Morehouse, who quit the use of tobacco one year ago. He used tobacco 25 years. I promise to pay for the smoker if he uses the weed again.

MRS. M. D. MOREHOUSE.

Loveland, Iowa, April 26.

I have been a moderate smoker of cigars for some 8 years; but I have made up my mind it is a foolish habit, and have quit for good. Send me a smoker; and if I ever use tobacco again in any form I will pay you for the smoker.

Moscow, Vt., April 19. E. U. FOSTER.

Send Mr. G. W. Wray one smoker free. He has quit the use of tobacco. We agree to pay for the smoker if Mr. G. W. Wray ever resumes the use of tobacco, under your conditions. I have known Mr. Wray for years, and he quit chewing about one year ago, and I think he is entitled to one. ED. W. GREEN.

Pickering, Mo., Apr. 8.

I received a smoker from you about five years ago as a reward for quitting the use of tobacco. I never expect to use the weed again. I use my influence against the use of tobacco. My brother, Frank Mitchell, has quit, and says if you will send him a smoker he will pay for it. If he doesn't I will. May God bless you in this work! G. W. MITCHELL.

Union City, Tenn., April 18.

My father has quit chewing tobacco, and he says if you will send him a smoker he will keep it as a pledge to never use tobacco again in any form. Send it to me and I will stand as a witness. M. C. RAWSON.
Quincy, Mich., Mar. 17.

Mr. Chas. Ferris and N. J. Whitlock have this day quit the use of tobacco in any form, through the influence of GLEANINGS. Please send them smokers. If they use tobacco again I will pay for the smokers. O. C. ABEL.
Wayville, N. Y., April 30.

Will you please send to my brother, A. C. Whiting, a smoker, as he has quit the use of tobacco through the influence of GLEANINGS? He also has a few bees. He has not used tobacco for about three months. If he ever uses it again I will pay for the smoker.
Mapleton, Utah, April 14. E. M. WHITING.

John Riley, a friend of mine, of this place, after using tobacco for about six years, solemnly pledges himself to quit the use of it. If he is entitled to a smoker, please send it; and if he ever resumes the use of tobacco I hereby agree to pay you for the smoker. THOMAS TOUSLEY.
Woodyard, Ohio, Mar. 14.

Please send Mr. Irwin Johnson and E. M. Carrier one smoker apiece. They have stopped using tobacco, and say if you will send them a smoker they will keep it in sight to remind them of their pledge. I will vouch for their honesty. G. A. CARRIER.
Summersville, Pa., March 7.

My two sons are beginning to keep bees. They have been using tobacco for some time, but have quit, and agreed to stay quit, and think that, under your offer, they are each entitled to a smoker. If they break over they will pay for the smokers. J. S. WITHERSPOON.
Siverly, O., March 16.

Having been a subscriber to GLEANINGS, and being induced to give up the use of tobacco by reading it, I now claim a smoker. I quit it nine months ago, after having used it for 32 years. If I ever use it again in any form I will pay for the smoker. I want it as a reminder.
Reed Creek, Ga., April 29. J. L. BAILEY.

I referred C. W. Satterlee to the Tobacco Column, and showed him what it had done for friend March and his German friend, and he wants one too, so please send him a smoker; and if he ever uses tobacco in any form again I will pay you for the smoker. F. B. JONES.
Howard Lake, Minn., Mar. 1.

Will you be kind enough to send me a smoker? I have quit the use of tobacco altogether. I never intend to use it again. I feel much better than when I used the weed. I have gained 15 lbs. in weight since I gave up the filthy habit. Should I ever use it again I will remit the price of the smoker. SAMUEL COLE.
Cass City, Mich., April 6.

I have received the third copy of GLEANINGS; and after reading the Tobacco Column I have resolved to stop the use of tobacco. If you desire to add one more to your list of converts, please send me a smoker. I will solemnly pledge myself never to use tobocco; and by the help of God I hope to keep my pledge. Should I ever use it again I will pay for the smoker.
FRED W. L. SCHMIDT.
Long Grove, Iowa, Apr. 11.

After using tobacco thirty years, I have, through the influence of GLEANINGS, and the help of God, quit the bad habit; and I intend to stay quit. If I am entitled to a smoker, please send it, and I will pay for it if I ever use tobacco again. JOSEPH H. REDFIELD.
Franklin, Tenn., May 2.

I see that you, like myself, are opposed to the use of tobacco. I have quit the vile stuff while I have recently become a subscriber to GLEANINGS. You have been sending me sample copies, and I have noticed the Tobacco Column, but I can't say that I was influenced to quit from what I read in that, for I read all that I saw on the subject. If you think I am entitled to a smoker, send it along. I will never use tobacco again, God being my helper. J. S. MANN.
Princeton, Ark., April 30.

If you are still sending out smokers to those that give up the use of tobacco, you may send me one of them if you please, as I believe I am entitled to it. I have used tobacco for about 16 or 18 years; but after reading your Tobacco Column for some time I made up my mind to quit the use of the filthy as well as hurtful weed. I have not used tobacco in any form since last Fourth of July, and it is my honest intention never to use tobacco again; if I ever do I will pay you for the smoker. JOHN J. HOFFMAN.
Elsinore, Cal., Feb. 15.

I have induced my brother, Mr. George W. Dewitt, of Sunny Side, Md., to stop the use of tobacco, and he agrees to pay you for a smoker if he ever commences the use of it again. He has some fine Italian bees, and it would be an acceptable present if you can send it. I will go his security, and see you get your pay if he ever uses the weed again. Please send a smoker to him at Sunny Side, Garrett Co., Md.
MATTHEW H. DEWITT.
Sang Run, Md., April 4.

A TERRIBLE ENDING.

I know of a young man 20 years of age who had a shock a few weeks ago, caused by using tobacco. It affected him so as to kill his will power, so he would not work or care for a thing but that and idleness, etc. He made a constant use of it, night and day; and the worst of it was, he began when only nine years old, and kept it from his father for two years. He offered his son a little farm and all, if he would give it up, all to no use, and they say he can live but a short time. He is in the hospital in Lewiston. E. P. CHURCHILL.
Hallowell, Me., April 5.

[Well, well, boys; if this is not an "experience meeting," then I never attended one. Some way, March and April seem to have been prolific in good results in the tobacco line. May God bless you all, and may he speed the work. And now while it is well under way, who else is there who will join in and keep the ball rolling? Why, it seems as if such enthusiasm must be catching. Think of the younger ones who are growing up, many of them ready to turn one way or the other; and then stand up and say, "I too, God helping me, take the tobacco pledge." When friend March told me his story I felt sure it would bear a crop of something good; and it seems to me I can see that genial smile spread over his face as he reads this number of GLEANINGS. Old friend, how are you by this time, anyhow? How are the cabbages and the celery and the cauliflower? and, of far more importance, how is the work going on for Christ Jesus over in that new town of Anacortes?]
A. I. R.

OURSELVES AND OUR NEIGHBORS.

And the prayer of faith shall save the sick, and the Lord shall raise him up. JAMES 5: 15.

I am afraid my talk to-day will be a good deal *myself* rather than neighbors; but it may be the neighbors will be benefited—some of them—at least, I hope so. Well, for the past few weeks I have been wearing my overcoat and my old fur cap; yes, and I have had sore throat, colds almost all the time, and have been sick generally, so that I began to think again that I should never be real well any more. Mrs. Root talked about a permanent remove to a dryer climate, and my mind has been running over San Jacinto, Tropico, Wilson's Peak, and other points where I felt well at the time I was there. But, oh dear me! I couldn't bear the thought—neither can I bear the thought now—of a *permanent* banishment from my home here in Medina. I didn't tell anybody; but I thought a good many times to myself, that I believed I'd about as soon *die* in Medina as to *live* in any other place.

Over and over again I tried to think it was only a notion, and I left off my overcoat when the weather was so warm and fine, but it was inevitable and sure; the sore throat and chills came back, and I had to be bundled every night like an Egyptian mummy, and have a hot stone to one of my feet besides. Things went on after this fashion until Decoration day. Of course, feeling as I did, I had no desire to mix in with crowds; in fact, I didn't really want to see *anybody*. The friends readily excused me on account of my well-known poor health; and while the rest of the factory was deserted—or, at least, almost deserted—I was left alone. I remember on that particular morning thinking of the text at the head of my talk to-day, and I wondered why it was so plain and positive, and yet people—even ministers—have so little to say about it. 'Tis true, the "faith cure" people have laid considerable stress on the matter, and they also claim great things; but their plan of work has somehow never commended itself very much to me. I have felt a good many times as if I didn't care so much about being made well *myself* as I did about understanding the mystery and real cause of sickness and disease. If, in answer to prayer, I should be made well and my neighbors left sick, it wouldn't particularly commend itself to me. What I craved was wisdom from on high to know wherein I was transgressing, that I might teach others the laws of health, for I feel sure we do transgress when we get into these troubles.

Perhaps some of you think that A. I. Root is always bright, cheerful, and hopeful. I have *told* you several times it wasn't true, but you don't seem to believe it. I am afraid sometimes it is not quite right for me to appear so bright and full of faith when in reality I get the "blues" as other people do. There was a letter in my pocket on Decoration morning that somewhat disturbed me. My very dear friend J. L. Peabody, of Denver, Col., in speaking of my pleasant visit there, uses the following words:

"I often look back to that Sabbath morning when you led family worship. I do not know that I ever enjoyed such a service more in my life. Certainly very few read the Bible as you did that morning."

Yes, I was bright and hopeful, and full of faith during that visit. I now remember my hopeful exhortations during family worship that morning; but I fear I should never have remembered it again had it not been for this reminder. Well, on this Decoration morning I was very much inclined to be "blue." Even the plants and garden and strawberries didn't interest me very much: no, not even the fact that we were having a nice trade, and the business was paying tolerably well. I felt just then that I didn't care for plants or gardens; I didn't care for money; in fact, I didn't care for any thing the whole wide world had to offer. I had no enthusiasm for any thing. Did you ever feel that way, my friend? I knew the remedy full well. I had "been there" before. Such experiences often make me think of the words of the Savior when he told his disciples: "This kind goeth not out but by prayer and fasting." I had already *fasted* enough, the dear wife knows, if nobody else does; but she *didn't* know how *little* I had been praying off alone by myself for a few days back. Well, when I felt I could stand it no longer I pushed off alone, away by myself, where I could speak aloud without danger of intrusion. I prayed and kept praying—not in a feeble, formal way, but in real earnest, because I *was* in *real* trouble, and then I thought of the text. Somebody repeated it a few days ago at the noon service, and I wondered at the time so little attention had been called to a text so plain and positive. I thought of Wilson's Peak, and wondered if *it* would just now awaken enthusiasm; and I remember, too, wondering whether the enthusiasm would cure my sore throat and allay its stinging, and, above all, give me a relish for life's duties. While in this frame of mind I wandered down to the creek bottom and noticed the soil was just getting in prime shape to cultivate. Everybody had gone to the Decoration services, and there wasn't a man on the place that could be spared to cultivate. I passed by the stables, and old Charley looked around inquiringly, evidently thinking it was a little funny that *two* Sundays should come together. He backed up, looked toward his bridle with a sort of inquiring manner, as if he suggested it was about time to be hitched to that cultivator. Then it occurred to me that I would rather take old Charley down in the lot and cultivate—at least, as long as I could stand it—than to do any thing else in the world. Somehow it always does me good to go off alone with old Charley, and get *acquainted* with him. There is something noble, and I was going to say manly, about that horse, and I think I *shall* say it. He never shrinks duty, even though he is old and broken-winded. If the work is hard he will push ahead and outwalk almost any sound horse; in fact, if the day is very hot he will push ahead until so out of wind that he will fall down in sheer exhaustion, if his driver will let him, But how should *I* cultivate? Mrs. Root, the doctor, Ernest, and the scores of friends have been scolding me for weeks back about *overexertion;* in fact, I had given up going up town to evening prayer-meetings because the walk of half a mile seemed to use me up so much. Notwithstanding, I decided to cultivate for a little while, just for the fun of it. Old Charley very kindly backed up, held down his head, and even opened his mouth to take in the bits. He seemed to be quite willing to save my health, and to save exertion; and I felt grateful to him right away. Before he commenced cultivating I remembered there had been a good deal of discussion about his stepping on choice plants, and I have several times thought his stepping on plants was caused more by his driver yanking on the lines than by any fault of Charley's. For instance, he would get pretty near the plants that were just coming up, and the driver would give him a yank, so much stronger than was necessary, that he would go straight across and step on the row opposite. The day was hot, and every little thing was burdensome. I remembered what friend Terry had said about cultivating, and I meditated taking off his lines and all unnecessary parts of the harness, to make the poor fellow as comfortable as possible in his infirmity.

Now, this brings me to a humiliating confession: If I took off his lines I must guide him by "gee" and "haw;" and, to be downright honest, and own up, I never could learn to tell "gee" from "haw." My father scolded me time and again because I got them wrong; but the more he scolded, the worse I got; and I am afraid that my good parent gave way in despair when I was a boy. I was like the little girl who was counting the chickens. She said she counted them all but *one;* but that one ran about so "everlastingly" she really *couldn't* count it. I could learn every thing but "gee" and "haw;" but nobody could teach me that; and here I was, 52 years old, and didn't know "gee" and "haw" yet. My teamster had consented to drive the big team so as to get in some crops, even though it *was* Decoration day, since it was the only suitable weather we had had for weeks, and I meditated asking *him* to explain to me about "gee" and "haw," but I was ashamed to. Finally a thought struck me: Oh, yes! old Charley is to be my helper and *teacher* to-day, and *he* knows *sure!*" I ventured to say "haw" when I wanted him to go a little further off from a row of strawberries. He very promptly walked right on to them. So I learned which way "haw" was, by sad experience. Pretty soon we were working nicely without any lines at all, and when we came to a shady tree I let Charley eat grass while he recovered his wind, and I leaned over against the cultivator and recovered *my* wind. Charley looked at me several times with his great honest eyes, thinking, perhaps, that was a new glimpse of *my* character; and I, too, had got a new glimpse of *Charley.* He knew "gee" and "haw" just as well as he knew this name, and minded to a dot. For a while we had a little confusion in turning around, because without the lines he couldn't tell whether I wanted him to go once or twice in a row, and sometimes I skipped from one part of the grounds to the other, cultivating the stuff that needed it most. How was Charley to know when he should go ahead to some other place, and just when he should turn in? I was greatly surprised and pleased to find that, by telling him to "go ahead *gee,*" or "*haw* right in there, Charley," he would do it every time. I didn't know before that a horse *could* be taught so much as Charley seemed to know already that afternoon. I knew that for several years Charley had been very impatient at being led by the bits by anybody. He will even bite, snort, and stamp his feet in protest, when you attempt to take him by the bit. He seems to say by his actions, "Oh! you go and take hold of the lines and tend to your business. If you will tell me what you want, in plain English, I can understand, and I have got sense enough to know how to do all sorts of work."

All of his drivers sooner or later learn that, and they often remark: "You can *drive* Charley anywhere with the *lines,* but he doesn't lead by the bits worth a cent." We have been told, in old-time fables, of people who had been, by some scorcery or incantation, transformed into certain animals for a certain period of years. These people *knew* everything, but could indicate *who* they were only by signs. My friend, did you ever think it possible that your patient horse might be one of that sort? Hadn't you better be kind and gentle to him, and even respectful, even if it isn't true?

Well, while Charley was getting his wind I took the opportunity to get "acquainted" with the Planet Jr. cultivator also. I had been annoyed by having young stuff, just peeking through the ground, covered up by soil; in fact, the cultivator had sometimes thrown clods on my choice strawberry-plants. I soon found that, by swinging the slender narrow teeth, I could make them draw the soil *away* from the plant. Now, this wasn't just what was needed exactly, so I put a rather wide shovel in the center that finished up, by throwing fine soil back where the front tooth had drawn it away; and I not only tore out the weeds close up to the plants, but I threw up a mulch of fine soil, leaving a furrow in the center to take away the water from heavy rains. Oh! I tell you, but I *did* enjoy the work that afternoon. It is true, I sat down and rested at the end of every row, and sometimes in the middle of a row; but before long the blood was tingling to my very fingers' ends, just as it did when I climbed Wilson's Peak; and notwithstanding my clothing was removed, one article after another, it seemed as if the perspiration ran in streams from almost every part of my body. With surprise and thanksgiving I began to realize that not only entusiasm but strength was coming back—strength and a keen sense of enjoyment in living, that was new and most wonderfully delicious. I was enthusiastic about accomplishing so much work to my perfect satisfaction, and I was enthusiastic, too, in finding what a grand, capable helper I had found in poor old Charley. When the sun came out between the clouds, and poured down its rays full upon him, with very little breeze blowing, his labored wheezing admonished me he could not hold out to the end of the row, for the cultivator was almost buried in the soil, for it hadn't been stirred before in a month; in fact, pretty good-sized weeds made it laborious. After the sun was obscured by clouds, however, and a big breeze came up, Charley held his wind rather better than I did mine. I think it was about half-past three when I first began to feel a little symptom of fatigue. The teamster, who is a good neighbor of mine, also began to remonstrate. If Mrs. R. and Ernest knew what I was doing I felt pretty sure my enjoyment would have been cut short. Finally I left Charley eating grass under a tree, and I made my way slowly to the house. When my strength commenced to give out it went out pretty fast. Mrs. Root supposed I had changed my mind, and finally gone to Decoration, and no one had missed me. Perhaps I should mention, that, down in the field, the men drink hard water from the windmill pump; but I have been so feeble — at least I thought I was—that I always have to have soft water from the cistern; but while I was cultivating and perspiring at such a rate I drank the hard water—well, I should say quarts of it—and it didn't hurt me a particle. I lay on the lounge perhaps 20 minutes, drank a cup of beef-tea, and, oh my! what a supper I had that night!—Wilson's Peak over again, as sure as you live; and it didn't cost several hundred dollars either, because it was thousands of miles away. My prayer was answered. The overcoat, fur cap, the flannels, and a great lot of other trumpery, were disposed of on that afternoon. The friends all prophesied a reaction; but it hasn't come,

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[*] Since the above was submitted to Ernest he tells me that there is a school of physicians who practice on the line I have indicated. I do not know whether they prescribe horses and cultivators or not; but this thing is certain—at least to my mind—outdoor exercise, or, if you choose, any sort of exercise, must be accompanied with enthusiasm in and for the work: and I do not know of any better place to go for this enthusiasm than to Him who gave us the promise: "If any of you lack wisdom, let him ask of God, who giveth to all men liberally, and upbraideth not."

and it is now Thursday. I am working out with the men every day, eating big square meals, going in my shirt-sleeves, and am well every way. The cure came *straight* and *prompt* and *speedy* after that *earnest* prayer and pleading the promises of God's holy word. It came in the line, however, of a *horse* and *cultivator*. Now, I don't know, dear friends, how many may be cured in a like manner; and I have no right to say, either, that I shall not have a recurrence of these troubles. Since that Monday afternoon, the weather has been warmer; the amount of rain has been less, although it has rained more or less every day. It is possible that I may *yet* be obliged to seek a warmer and drier climate. I can not lay down or prescribe rules of *health* for every one; but I can with perfect faith and assurance point every child of humanity to the promises in the little text at the head of this talk to-day. Go, in *faith believing*, to the great Father above, and *he* will surely point out the way.

"And the prayer of faith shall save the sick, and the Lord shall raise him up."

NOTES OF TRAVEL

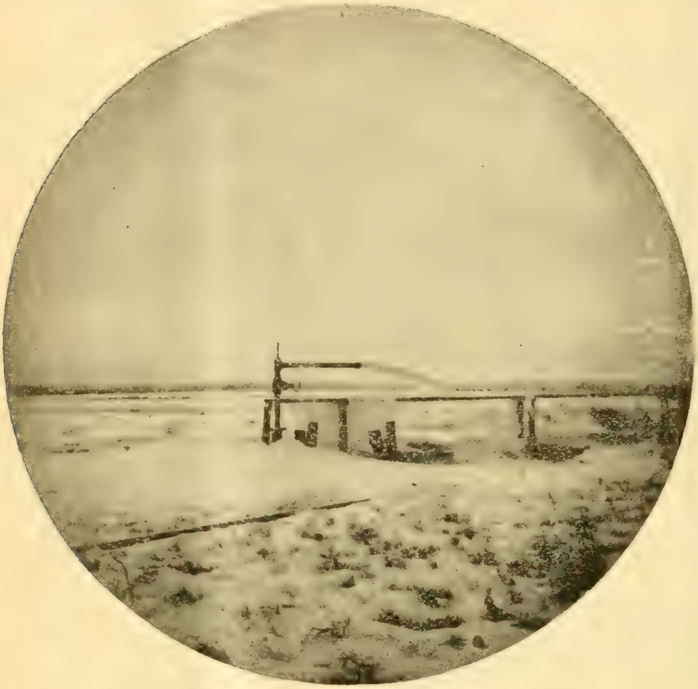
FROM A. I. ROOT.

In the valley of San Jacinto we first saw a wind-storm. It took up the sand and dust, and sent it all through the houses, and into every crack and cranny, until it caused the good housewife a "heap of trouble." After we had a good rain, said I, "No more sand-storms;" but the old inhabitant said, "Not so. The hot whirlwind from off the Mojave Desert dries the sand, almost, in the very act of whirling it into the air," and so we found it. This hot wind is a foe to the bee-keeper, for it melts down the combs wherever it strikes. Some sort of shade to keep off the sun is here almost a necessity, and many bee-men have windbreaks also, to keep off the hot winds. They do not, however, come very often, and some seasons not at all.

ARTESIAN WELL IN THE MIDDLE OF A LITTLE LAKE OF ITS OWN MAKING.

All through the valley, as well as at other points, one is astonished at the wonderful growth fruit-trees make; and this wonderful luxuriance never seems to prevent them from bearing prodigious crops as soon as they are old enough, and sometimes even sooner. Peach-trees bear at two years from the bud, and a grape *cutting* has been known to bear a good-sized *bunch of grapes* the very year it was planted in the field. This is what I mean: Cuttings were set in the field instead of young vines; and although these cuttings, when set out in the spring, had no sort of root whatever, before another spring some of them had produced bunches of good ripe grapes. This is, doubtless, owing to the long growing season, and to the water, that was given without stint, as often as needed.

You know how much I am interested in artesian wells? Well, San Jacinto is one of the favored localities where water rises several feet above the surface, where a pipe is driven down only a little over 100 feet. The first morning after my arrival I found my way to one of these wells. The men had not quite finished it; but I was so much taken up with the gushing water as it escaped over the top of their pipes, that I scarcely looked at the workmen at all, when somebody startled me by saying, "Mr. Root, how do you do?" Glancing up I saw one of our Medina people—in fact, a near neighbor. It then transpired that his son was the man who superintended the drilling and putting in the pipe. I did not learn how the iron tube is put down, but was told that, while sinking the pipe, they make a note of the points where water seems to be plentiful. Then, after the pipe is driven clear down, an ingenious machine, specially designed for the purpose, is put down in the pipe, and, by proper manipulation, the pipe is bursted at the points where the water is to come in. This bursting opens a seam that will let in the water, but not permit gravel or sand to flow through. The lowermost vein is opened first; then the different veins above it, the volume of water continually increasing at each subsequent opening. While I stood by, the well was finished, and the proprietor had to hustle himself with his hoe to make a channel to let the water run away so it would not drown him out. He was already making garden, and had his grape-cuttings out, and I could see his face light up with animation as he conducted this liquid treasure around through the light soil between the rows of cuttings, trees,



ARTESIAN WELL AND RESERVOIR AT WOONSOCKET, S. D.

etc. I covered the top of the pipe with my Kodak, and anticipated giving you something refreshing and beautiful in the way of a picture; but in my anxiety I placed the instrument too near to the water (so Ernest says) and it did not work. On the previous page, however, I give you something similar.

When the water pours over the top of the iron pipe, if the top is square and level it looks like an inverted glass vase or a bell-glass, and is about as handsome as any thing that can be imagined. Mr. Elmer Scott, who has been drilling the wells around San Jacinto, left Medina only two or three years ago; now he has a beautiful little home of his own, garden full of fruit, and, of course, an artesian well with a bubbling brook of pure soft water flowing out among his plants. It was in the evening, after dark, when we made him a call; but the children were so animated about the garden that we went out by lamplight and saw the lettuce, radishes, and other things just coming through the ground under the influence of that sparkling water applied right in the middle of January. We saw the astonishing growth of fruit-trees, and witnessed the manner in which a fruit-orchard can be got under full headway in less than half the time we do it here in Medina.

While on the subject of artesian wells, I will give you a Kodak view of one taken on the farm of C. E. Hinds, at Woonsocket, S. D. The pipe comes up in the middle of a reservoir, which you will find fully described on page 966 of last year. When this reservoir is full of water, to get to the pipe it is necessary to go out over the water on a raised walk. At the time of my visit the reservoir was empty, and the ground covered with snow. The valve was opened, and the full volume turned on. You will notice the immense icicles hanging down by the walk close to the pipe that comes out of the well. As it was freezing weather, it was a rather difficult matter to get the cap screwed over the large tube. Could we have done so, the water would have been thrown up in the small pipe more than 100 feet high.

POLE CANYON FALLS, NEAR THE RESIDENCE OF T. F. ARUNDELL, FILLMORE, CAL.

Before we get any further along I wish to give you a picture of the falls alluded to on page 420 of our last issue, and described more fully on page 173 of our issue for March 1. Friend McIntyre handled the Kodak, and you see he has (as he usually does) made a success of it.

This falls is remarkable from the fact that chemicals contained in the water have formed a sort of trough or spout all the way from the top of the falls to the bottom. So the water instead of falling, simply "slides down," as it were. Notice the bent strata of rocks, as if some mighty crushing weight had bent down the very earth itself at the very point where the water runs over. At the left of the picture is a cavity in the rocks. One of the boys ensconced himself in here; but the Kodak, it seems, did not quite bring him out. The rest of us were around the falls in different positions; but we do not seem to be there in the picture. I have forgotten the distance, but I think the water comes down some 30 or 40 feet. I had climbed up the rocky cliffs until I was nearly on a level with the canyon above; but friend M. admonished us that, if we did not hasten back, we could not make the train and keep our appointments. In our next issue I shall have something more to say about the San Jacinto Valley and the good people who live there.

HIGH-PRESSURE GARDENING.

BY A. I. ROOT.

THE MATTER OF LETTUCE ON OUR QUARTER-ACRE FARM.

In our issue for June 1 I spoke about getting 30 cents per lb. for Grand Rapids lettuce. We get only 20 cents now; but I have a little more to tell you in regard to those lettuce-beds. They are covered by 18 sash, making about 60 feet of bed. About a month ago I commenced cutting the lettuce wherever it seemed to be thickest, or had just begun to crowd a little. The demand for it was a little more than the supply, so we kept the price up to 30 cents per lb., right straight along, until about a week ago.

The plants were put out, as nearly as I can recollect, about the middle of March. The ground was already rich, and we put on the glass and took off the glass until I really began to be afraid the labor was going to be more than the lettuce would come to. As there was no steam heat under the beds, the lettuce did not grow quite to suit me. One day our teamster said he must have the horses shod; and in order to kill two birds with one stone, we get a load of manure of the blacksmith while he is at work at the horses. This manure, you know, has no straw nor bedding with it. Besides that, it has parings from the horses' hoofs, particles of iron, etc. Somebody has suggested that the iron is valuable for manure. I do not know how true this is, but I rather doubt it. I do know, however, that the manure that we get at the blacksmith-shop is always very valuable. It was put down in one of the roads near these lettuce-beds; and as it rained almost every day I wanted to hurry and put it on some crop before its strength was leached out. Two schoolboys came along pretty soon and wanted a job. "All right," said I. "Get a couple of dust-pans out of the store, and put that heap of manure nicely between those lettuce-plants. Cover the ground entirely, but don't you cover a single lettuce-leaf." They went at it like young beavers; and although it was quite a job they got it done in nice shape. Of course, it took some time, and I again began feeling troubled for fear the lettuce would never pay for the time, manure, and handling the sash. With the April showers, however (that did not come until along in *May*), it began to attract the attention of passersby; and when I found that people would have it before it was ready to cut, and even if it did cost 30 cts. per lb., I took courage. Well, I have been taking out a plant here and there, wherever it was crowded most, for fully four weeks; and even now, June 8, the beds are full and entire*—"a thing of beauty and a joy forever" to the really enthusiastic gardener. Every man, woman, or child, or even little girl, that passes those lettuce-beds responds with a smile to my interrogation, "There, sis, isn't that pretty?"

How much money have I taken from that bed in these four weeks, and still have it full and complete every day? Well, we have got as much as $30.00 or $40.00; and as the remaining heads weigh nearly a pound each, and some of them would about fill a peck measure, if they do not go to seed pretty soon we shall get $30.00 or $40.00 more. In order to get these prices, however, we have got to work and plan. For instance: We had a similar bed of Boston Market lettuce. But the people had taken such a fancy to the Grand Rapids, with its wonderful beauty, that they did not care much for the Boston Market. The latter was heading up, however, and I knew it must be sold. So I fixed a basket so as to look very attractive, with the little rose-tinted heads sprinkled with dew, and told the boys they must push it, and therefore put it at half price, only 10 cents per lb. This made the large heads come to a nickel, while the moderate-sized ones were two for a nickel. And then they started. I was just in time with my project, for next morning at least a dozen heads had burst to send up a seed-stalk; by noon another dozen had done the same thing; and by another morning, over 30 or 40 had to be sold. I put on the wagon such a quantity that I felt sure the boys would not sell them all. But by 9 o'clock I was encouraged by the report that the Boston Market lettuce was all gone, and that they could have sold more. From that time on I made it my business to watch that bed and take out every head just as it showed symptoms of shooting up to seed. To-morrow morning takes every last head, and hardly one was lost. This bed is only 15 feet long—just about what would be covered by five sash, and it has yielded us altogether fully $10.00, or $2.00 per sash. It is now ready for another crop.

You may say, "Oh! well, lettuce is a big staple in market-gardening. You could not do it on your *whole* quarter - acre." Wait a minute. Asparagus under glass will do fully as well, if not better; wax beans, ditto; bush lima beans, ditto. Eclipse beets, our first crop under perhaps 10 sash, I think have done fully as well. They have all been sold at from 10 to 15 cents per lb.; perhaps fully half at 15 cents. Early cabbage will do nearly as well; and I feel sure that the White Plume celery will do as well, although we have not got around to prove it yet; extra early corn, nearly as well; cucumbers, you have already heard a report from by friend Ransom. I have done but little with early melons. Onions will surely do as well as lettuce. We made our first pulling, of onions under glass, to-day. American Wonder peas we have tested to some extent. Our first picking is ready to-day, grown over the steam-pipes. Our first Early Ohio potatoes were dug June 4.

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*Our minister says these lettuce-beds are like the widow's cruse of oil.

They were quoted at the time at $7.00 a bushel, wholesale. Right before me as I write, is a bed of Early Ohio potatoes with foliage that seems to promise a yield of certainly more than 1000 bushels per acre. Early Sugar pumpkins we started under glass, and moved them to the field when they were just beginning to run; the same with cucumbers, summer squashes, and other vines. A nice bed of radishes under glass, prudently managed, gave a tremendous crop—I never figured up just how much. Spinach we propose to grow next season under the sash made of slatted glass, said sash never to be handled at all until it can be removed entirely. We have not yet raised tomatoes under sash, but I will tell you what I have done. About a month ago we had some beautiful Dwarf Champions getting to be too large for the greenhouse. They were removed out into the plant-beds, and set far enough apart so they could make great stocky handsome plants. Well, these plants grew up to be the finest-looking ones I ever saw in my life. We did not intend them for sale, but they were to be planted out in our own ground. A lady went by, however, and declared that she *must* have some of them, if they were to be bought. Thinking she would not want more than two of them, I told her they were worth to us about a nickel apiece. She took eight of them, and went away highly pleased. Well, at a nickel a plant (and th plants occupied the bed for only about four weeks, so late the sash was not put over them more than once or twice all together) how much profit do you suppose there would be?

This ground, mind you, is to be occupied over and over with crops—not only three months or six months in the year, but with many crops the ground can be earning something *every* month in the year.

We have been selling Prizetaker and White Victoria onion-plants for a dollar a thousand as you may know. Well, one customer paid us a dollar for the onions that grew in a *single row*, said row being the length of the sash, or six feet long. The rows were about as far apart as the lights of glass; and at that rate we should get $4.00 for the use of a sash for 60 days. By the way, these plant-beds afford the very finest opportunity to use concentrated manures. At present, however, my experience is in favor of only one such fertilizer—guano. Of course, stable manure is *always* safe. In one of our onion-beds, one end seemed to be poor; in fact, the onions were not half as large as those at the other end; and for several weeks it seemed almost impossible that they could ever be made to catch up. As an experiment, I directed some guano to be sifted over the poor onions until the ground was pretty much hidden by the yellowish red of the fertilizer. Then with hand-weeders it was stirred in between the rows and between the plants. It was, perhaps, ten days before the onions began to "feel their oats;" and then after a warm shower—my! but didn't they just climb! Whenever the boys look at that onion-bed they just wonder to see those little yellow puny-looking things outstripping the rest in both tops and bottoms. I have tried nitrate of soda in the same way, and it has never yet showed any benefit whatever. Fearing that we had not used enough, we commenced increasing the dose gradually until we really injured the onions; but the ground has never since shown any benefit whatever to any crop where the nitrate of soda was put on. You will notice that the experiment stations in different States are making reports quite similar. It seems pretty hard, dear friends, to think that any seedsman would encourage people to buy a fertilizer that was of no benefit whatever. I speak thus strongly, for it pains me to see nitrate of soda continually and persistently recommended by so many who have it for sale.

From the reports I have made above, it would seem not a difficult matter to make the space occupied by each sash bring six or eight dollars during the whole year. As it is a pretty hard matter, however, to plan so as to have every foot of space going at a high-pressure rate *all* the while, we shall have to figure more moderately. Theoretically, either seed should be sown, or plants put out, within *one hour* after a bed has been vacated. But experience seems to indicate that average humanity is hardly equal to crowding things like this. Sooner or later some piece of ground will be doing little or nothing; and, no matter how much help is employed, the boss will now and then forget or neglect to do every thing in the time it should be done. Some unprofitable crop will be allowed to cumber the ground. For instance, part of the radishes will be pulled from a bed and the remnants left, when they are not really worth any thing. Now, just as soon as this time comes, the rest should be cleaned up and sold for what they will bring; but instead of doing this, such beds frequently stand until the radishes go up to seed, and possibly weeds are also doing the same thing along with them. No matter how much the rich fertile soil costs, nor how expensive the land is, I have never known a man yet who didn't get caught napping now and then; therefore, instead of saying that the space of bed occupied by each sash will bring us at least $6.00 each year, we will count it at just *half* that; and if the gardener is at all enterprising and enthusiastic it should do this. Well, our model quarter-acre of ground is to have 24 beds, of 14 sash each. This would make 336 sash all together; therefore the net returns from a quarter of an acre arranged as I have planned should be about $1000. Some localities may make it twice that, and others perhaps half as much; and if the cost of labor and manure for the quarter-acre be subtracted, the remainder will show you what you have to support the family. The *labor*, we expect, will all be done by the father, mother, and children. Mrs. Root thinks *she* could take care of a quarter of an acre herself except handling the sash. My impression is, however, she would find the help that three or four children could give very convenient.

It has occurred to me many times that such an arrangement would be a wonderful thing for a florist. But this will be rather out of the line of the present little treatise. Last season I had a bed of portulaccas that seemed to me were "a thing of beauty and a joy for ever" for many months. On our rich plant-bed soil all sorts of flowers flourish with wonderful luxuriance. The third crop on a piece of bed about the size of four sash is now occupied by gladioluses. First, we had cabbage-plants. Just before they were to be taken up and sold, the gladiolus-bulbs were put in, a foot apart each way. Before *they* had come up, Dwarf Champion tomatoes were transplanted as thickly as if no bulbs were in the way at all. By the time the tomato-plants were ready to be sold, the sharp, knifelike blades of the bulbs were just shooting up among them. This gives you a hint of the way in which the ground may be occupied with two crops at once, keeping the surface of the soil covered constantly with a heavy growth of something.

STRAWBERRY REPORT UP TO JUNE 10.

Michel's Early blossomed quite profusely, and we had hopes that it was going to make a better record. It is just now fruiting, and the berries are of fair size and good flavor; but some way there are not *enough* of them. Notwithstanding the fact that it is almost a week earlier than any other strawberry, I do not think we shall give it another trial. For three seasons it has blossomed fairly; but when it comes to fruiting, only a few blossoms seem to produce any thing. The Haverlands, right adjoining it, are loaded so that the stems are really sprawling into the paths, with great bunches of green fruit; and at the same time it is not more than *four or five days* behind Michel's Early. The Jessie, while it is loaded with fruit as usual, is going to be a little later this season, as it does not stand frosty weather as well as most other varieties. A plant called Beeder Wood has at present more green berries than any thing else I think I ever saw in the line of strawberries; and, what is strange about it, is, that the berries are all held aloft above the foliage, right up in the sun. As I have never yet heard this peculiarity mentioned in regard to this variety, I am inclined to think it is the effect of the season. If the plant succeeds in ripening all the green berries that stand up in sight it will certainly be a wonder. I have thought of giving it a dose of guano to "kind o' brace it up" for the tremendous task it has ahead of it. So far there has been quite a trouble on account of rot—a kind of rot that commences before the berries are perfectly ripe. We presume it is caused by the unusual amount of dampness, and lack of sunshine. When these defective berries are picked they do not seem to show it; but after only a few hours they become so soft they have to be thrown out. With more sunshine, the prospect with us is good for a wonderful crop of fine berries. A good many, however, are greatly damaged if not entirely spoiled by being under water; and this will, perhaps, be a trouble more or less general.

MORE ABOUT THE AMERICAN PEARL ONION, AND HARDY ONIONS THAT WILL WINTER OVER.

We have been expecting some more and some better reports from the American Pearl onion, for we sold altogether nearly ten bushels of sets. The onions down in our lot are now larger than hen's-eggs, and are a nice thing to have, I tell you. I can hardly understand why *we* should succeed, while so many others fail. Here are a couple of letters that may throw some light on the subject:

WINTERING OVER POTATO ONIONS.

On pages 339 and 340, Mr. A. F. Ames, of Tennessee, speaks of wintering potato onions; and it seems a surprise to you that they, being planted a month later than other varieties, wintered well. Perhaps if friend Ames had planted the others at the same time, they might have wintered as well. I do not know any thing about those; but we have grown potato onions for the last 20 years with success, and but very little loss, with the exception of two or three years when we had over two-thirds of a crop. We always calculate to plant about the 10th of October; in a warmer climate I should think better a little later, so the onion would get well rooted before it freezes up, not putting on your mulch until the ground is well frozen, so you can wheel your manure on with a wheelbarrow. This mulch will then keep the ground from thawing and freezing, which rots the onion. That is how we had our losses. It would freeze a trifle, and then thaw. Perhaps Mr. Ames put on his mulch before the ground was frozen, and they were kept too warm, and smothered. You might get some information on this subject from T. W. Griner, of La Salle, N. Y., who has tried to winter several kinds. I was there in March. They were coming up then; but how well he succeeded I do not know, as I haven't heard from him. H. F. GRESSMAN.

Hamburg, N. Y., May 9.

SWAMP MUCK FOR A MULCH.

I noticed with interest what was said in May 1st GLEANINGS in regard to onions wintering when planted in the fall. There are a great many of the potato onions raised here for market. We aim to plant them as late in the fall as the ground can be worked, some as late as Dec. 1. The later they are planted, the better they winter. The best mulch I have found is muck from a marsh near by. It protects the onion perfectly, can be left on, and keeps the ground from getting dry and hard in the spring. Hay or fodder, or straw manure, is apt to rot them. Ada, O., May 11. JAC. GUISINGLY.

I got half a peck of the American Pearl onion of you last fall, and planted part of them Sept. 1, the rest Sept. 20. Many of the earlier-planted ones sent up seed-stalks, which the later ones did not. The larger sets were first planted. I now have onions 2¾ inches in diameter, sweet and tender. I do not believe a single one failed to winter. L. C. SMALLWOOD.

Russellville, Ark., May 9.

[Friend S., it is nothing at all strange that they wintered all right with you in your southern locality, even if you did put them out so late as Sept. 20. This year we have had much the best success with those planted early.]

REPUDIATING HONEST DEBTS.

IS THERE DANGER THAT SUCH A COURSE MAY GET TO BE FASHIONABLE?

The above headings were suggested by some recent articles in our agricultural papers, particularly the *Rural New-Yorker*. Now, please remember that I am a staunch friend of the *Rural*, and I do not believe that it would ever knowingly teach or give place to any thing that might be unsound; yet I feel that there is danger in giving people space who seem to claim that affairs in our country are at present in such a shape as to partly if not entirely excuse a man for repudiation. I was recently met with a remark something like this:

"Is it a man's duty to work himself to death, even if his debts do go unpaid?"

The reply I made was something like this:

"My friend, I should rather die from overwork than to die with the consciousness in my heart that I had been living on other people's hard earnings."

The talk in this line has, perhaps, started along with the conflict between capital and labor. People who have money to let, or who make their living by lending money, are called usurers and extortioners; and the laboring classes—at least some of them—complain that these money-lenders go around with good clothes on, and do not work at all, and yet grow rich, while the laboring classes grow poor. My friend, our country is so free that anybody may make his money by loaning if he wishes to. Of course, he must have some to start with; but very many of the capitalists—perhaps the greater part of them—earned their money fairly and squarely to start with. There are millions of people wanting to borrow money; and I am sorry to say that there are a great many who would borrow money if they could, with very little prospect of their ever being able to pay it back. You all know this. There are such people all about you. If they can, by hook or crook, get somebody to make them a loan without security, as soon as the money is in their possession all anxiety about repaying it seems to be at an end. Perhaps there are not many who are so bad as this. But we all know them. Now, to let such people have money is a damage on both sides. You do *them* harm while they do *you* harm. To prevent this state of affairs, people who wish to borrow are asked to give reference, security, or mortgage. And this thing of giving security is helpful to both parties. If a man buys a piece of ground, and gives a mortgage as security, it acts as a safegard to prevent him from buying foolishly.

Years ago, in our community there was a man who loaned money, and there was so much complaint and hard talk about this man that I felt a good deal suspicious when I first became acquainted with him. I happened to be in his office one day when a laboring man wanted a loan, and proposed to give a mortgage on his house and lot. The money-lender spoke something like this:

"My friend, I make my living, as you know, by loaning people money; and I like to let them have money when it will be a *help* to them. Now, if I should refuse to accommodate you, and even refuse to take a mortgage on your home, you would be very much put out. But from what I know of you and of your prospects, I feel sure it will get you into trouble. If you will take my advice, and go home and keep on at work, saving up money by strict economy until you get what you want, it will be very much better for you."

The man demurred, and the money-lender went on:

"Well, now, suppose I let you have the money and take the mortgage you wish to give me. If you fail in meeting your payments, which I feel sure you will do, you and the public at large will censure me severely for taking your land; and yet I shall *have* to do it. I do not deal in land, and I do not want your place. It will be a hindrance to me if it comes into my hands; but there is no other way to do. I could not do business, and accommodate people by loaning them money, unless I used them all alike, and took their property when they failed to pay their money. And yet, whenever I do this, people call me hard and unfeeling. With this explanation, if you still insist on having the money, I will let you have it; but remember, you have had fair warning."

This money-lender, I believe, was very careful through all his life to do all he *agreed* to do; and I confess that, when I came to know him better, I could not help having more respect for him than for some people who do not by *any means* do all they agree to do. I suppose this matter of mortgages — mortgages on farms and homes—has started this whole trouble. *Our* property is mortgaged — at least a part of it — a great part of the time. I very much prefer to give a mortgage rather than ask a neighbor to sign with me. In the one case, if misfortune overtakes me I shall wrong my neighbor; on the other hand, I should simply lose that which is my own; and nobody but myself, or, possibly, my wife and children, are harmed.

Let us now go back to that first thought, "I am not going to work myself to death, even if I never *do* pay my debts." Is there any reader of Gleanings who feels like saying this? If there is, I wish to say to such that he is on dangerous ground. It will spoil his peace of mind, and spoil his peace with God, just as soon as he begins to let Satan put such ideas into his head. This morning I got up at half-past five, and assisted in getting the wagon ready for market; and by six o'clock it was all complete, across the railroad track, out of the way of the train. When the six-o'clock train drew up, a small boy stood near me with a light wheelbarrow. By the time the train had fairly stopped, two bushel crates of strawberries were lifted from the car right on to the light wheelbarrow. This was run up by the side of the market-wagon, and the fresh berries were around to the people's houses between six and seven. These berries came from our good friend R. Stehle, of Marietta, O. We help him by getting up in the morning and starting things promptly, and he helps us. To make things go off smoothly, and connect all around, it seems necessary for me to get up between five and six. Now, some people who see me looking after and directing things at this early hour of the day will, perhaps, say, "Well, if A. I. Root wants to wear himself out in that way he can do it. *I* am not going to do it for anybody." And very likely they have their breakfast at seven, or half-past, and get around to work between eight and nine o'clock. If this sort of man has a mortgage on his house and lot he will probably *lose* it, and then capitalists will be blamed, the laws of our country will be censured, and, in a little while after, the great God himself will be criticised and possibly defied. Once more: When you borrow of somebody you almost always go to him, asking him to do you a favor. When you ask a man to *sign* with you, you *certainly* beg of him to do you a favor and a kindness. You go to a neighbor, very likely, and take with you some one with whom you are on intimate terms. For friendship's sake, and because your neighbor dislikes to refuse, he signs with you; or, perhaps, he lends you the money himself — the circumstances are not very much different. Now, after he has, out of the kindness of his heart, helped you by giving you a portion of his earnings, or, if you choose, given you a portion of his good name (which cost him as much hard work as his money), can you, with any sense of right or justice in your heart, consider for a moment the *repudiation* of this honest debt? One poor fellow, who had gotten considerably into farm politics, said something like this:

"Mr. Root, we are all going down together, sooner or later; and I do not know that it will be any worse for *me* to repudiate my honest debts than for other people."

Now, while he was in this attitude of heart he was going around with good clothes on, when other farmers were hard at work, and perhaps were covered with dirt and perspiration. I do not believe, however, that he enjoyed "taking things easy" very much, after all, for of late he has been hard at work, and, if I am correct, is doing well, and bids fair to pay all he owes. In the first place, dear friends, do be careful about giving anybody a mortgage on your property. If you really believe that money-lenders are rascals, keep away from them and "starve 'em out." If circumstances are so that there may be doubt about your being able to pay it, I would exhort you to wear old clothes, and even go hungry; but I do not believe that anybody, or, at least, not many people, have come to that last alternative. Somebody has said, "The way things are nowadays, the poor man can never get ahead." Why, bless your heart, my good friend, the greater part of all the people who *do* get ahead *started* poor. Think of the men who are well to do right around you, and see if this is not true. There never was a better place nor a better time for a poor man to get ahead, in my opinion, than right in this land, and in this our nineteenth century. Of course, there is much competition, and we must get up early, fly around, and use our brains. Getting right down to work in real earnest does not often hurt people. Sometimes it is quite the contrary. See what I have said in another place about cultivating during a hot summer afternoon. The great adversary has not yet given up seeking whom he may devour; and it has come into my mind of late that he has studied up a plan of getting good people off the track by the *wholesale*. He persuades them that they are not having a fair chance, and that no man ever secures a competence by honest, earnest labor. Don't listen to him. Throw the lie back into his teeth, and say, "Get thee behind me, Satan;" then turn around and put in the place of his evil suggestion the bright little text given us by that veteran saint, "Owe no man any thing, but to love one another."

GLEANINGS IN BEE CULTURE

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It is good for me to draw near to God. I have put my trust in the Lord God, that I may declare all thy works.—Ps. 73:28.

Letters are still coming in, saying that the weather has been very unfavorable—rainy and bad, in nearly all sections of the Northern and Middle States, but the main honey-flow is before us.

We have not had enough faith in automatic swarmers to even try them till this season; and now we have actually told the boys to attach them to several of our stronger colonies. We await results.

It has rained almost every day since our last issue. To-day, June 10, the sky is cleared up, and indications are that we shall have pleasant weather again. Clover is just opening up, and honey is just beginning to come in.

It is with pleasure that we publish in this issue an article from the Rev. L. L. Langstroth, the father of American bee-keeping. We have already another article in hand which we will present to our readers in our issue for July 1.

We are getting a good many letters, ordering subscriptions continued, saying, "We can't get along without Gleanings. Please continue until I order it stopped," etc. Many times letters of appreciation are so strong that we feel like thanking each one individually. But this can not very well be done. We would, therefore, say to one and all, that all these expressions are appreciated, and have a molding influence on the character of the journal.

We must remind our friends again not to send us models or samples of implements or devices by express or freight, to illustrate some new idea, without first writing us. It goes rather against our grain to charge up the express charges to some kind and well-meaning friend who sends us an elaborate trap or device, even if it is entirely worthless, old, and abandoned. It may seem like a simple matter to complain of; but when things are sent to us constantly in this way, charges not prepaid, the matter is not so small as it might be.

Good clean alsike clover seed is just the thing to sow for new lawn plots. It will take root where all other seeds would fail; and after it has got nicely started you can sow Kentucky blue grass, or any other grass that is of a slower or more tender growth, and under the protecting leaves of the alsike it will grow and thrive. After the Kentucky grass is well rooted it will "run out" alsike and all other clovers. You can get a good lawn of blue grass when you could do it in no other way.

We are informed that Dr. J. H. Kellogg, of Battle Creek, Mich., for "the best part of an hour spoke of the objections to the use of honey." This is another evidence of how doctors and big professors sometimes "put their foot in it." We have no doubt that Dr. K. is honest in his opinion; but we can't help adding that it is nothing but an opinion. If the doctor had made a proper investigation he could not have come to any conclusion but that honey is wholesome to the average consumer. Certain kinds of new fruits are very distressing, producing colicky pains in many people. Even strawberries can not be eaten by some; and yet we know that strawberries, honey, and nearly all fruits, are wholesome and nutritious to the average person. It will be in order now for the doctor to lecture for "the best part of an hour on the objections to the use" of strawberries, watermelons, and the like.

PERFORATED ZINC, AND THE KIND THAT IS QUEEN-EXCLUDING.

We have been making some experiments with the Chicago zinc, and find that loaded workers can not get through it very readily. In fact, we could not easily force the bees through it by smoking. This zinc has perforations only $\frac{16}{100}$ of an inch wide. The zinc that we now manufacture has holes $\frac{17}{100}$, and that of Dr. Tinker about the same. While $\frac{17}{100}$ is perfectly queen-excluding to the average queen, it offers no particular hindrance to the workers. Two years ago we made zinc with holes $\frac{18}{100}$ of an inch, and discovered to our sorrow and that of our customers that an occasional fertile queen would get through it. We may safely put it down, then, in our books, if our experiments and the reports of our customers are any safe criterion, that the zinc perforations for excluding zinc should be $\frac{17}{100}$ wide. Perhaps we should say that the Chicago zinc was originally made for another purpose; but we sell it for only a very limited use; and no one should buy it for any other purpose than to prevent virgin queens from going from one part of the hive to another. It is absolutely unsuited for use in honey production.

THE "AMERICAN BEE-JOURNAL" AND ITS TRANSFER OF OWNERSHIP.

We were greatly pained upon seeing the announcement that the health of Mr. Thomas G. Newman has been such that he was obliged to sell the *American Bee Journal*, the "old reliable" that has been so successfully conducted by him for nearly twenty years. We have known for some time that Mr. Newman's health has been very poorly; but we did not suppose that it had come to such a pass that it would be necessary for him to dispose of some of his business interests. We are very glad to learn, however, that the *Journal* has been transferred to entirely competent and worthy hands in the person of G. W. York—an old assistant and employe who has for eight years been more or less connected with the publishing and editing of the *Journal*. Mr. York is full of business vim and enterprise; and we have no doubt that the change will be better for all parties concerned. We extend our right hand of fellowship to the new publisher; and it will give us great pleasure to co-operate with him as we did with Messrs. Newman & Son. Mr. York is a young man of just our own age; and although we have never met him, we have a sort of kinship feeling for him already. In our next issue we hope to introduce him formally to our readers through the medium of a biographical sketch and a portrait engraving.

We are glad to know that Thomas G. Newman still remains as one of the editors of the *Bee Journal;* and we may therefore expect—

though perhaps less frequently—the same characteristic and vigorous editorials that have graced the pages of the *Journal* in the past; and these supplemented by those from younger blood will add life and strength to an already flourishing paper.

Thomas G. Newman & Son, while they have sold out the *American Bee Journal*, still retain the *Illustrated Home Journal* and the bee-supply business.

A REQUEST FROM PROF. COOK.

Prof. A. J. Cook, of the Michigan Agricultural College, desires us to secure for him small samples, one pound or so, of comb or extracted honey from various parts of the United States, and from various flora, *stored rapidly* in the hives. These samples of honey should be sent direct to Prof. Cook, who will see that they are analyzed by competent chemists. The object is, to determine how the proportion of natural glucose, cane sugar, water, etc., varies in honey of known purity. The point is here: The chief chemist at Washington has decided that pure honey must contain certain proportions in order to be pure. Prof. Cook is of the opinion that these fixed proportions, as settled upon by Prof. Wiley, are incorrect; that many of the pure honeys will show the same chemical properties and proportions as adulterated honey. This fact established, will show that Chemical Bulletin No. 13 is not to be relied upon for its analyses of honey, because the whole bottom of a false basis will be knocked out. Again, if genuine honey varies largely in the proportion of cane sugar, depending on the more or less perfect digestion as the bee gathers more or less slowly, then chemists should know this, so as to have a correct standard to guide them. We ought soon to have laws in every State that shall make adulteration too dangerous a crime to be safely practiced; but such laws can be enforced only by our having a correct method to detect adulteration in case it is attempted or practiced. Let all who have honey *that they know was very rapidly gathered*, send a sample to Prof. Cook. In sending honey, state what it was collected from; at what date it was collected, and how much the bees gathered in a day. Wisconsin ought to send some basswood honey, and California some sage.

THE REV. L. L. LANGSTROTH AT MEDINA.

As announced in our last issue, Mr. Langstroth called upon us on Saturday last, June 4, remaining over Sunday, and going away Monday night. After these 17 years of that distressing intermittent brain trouble since we last saw him, we were surprised to see him looking so hale and hearty; and although he was 81 years old last Christmas, his mind seemed to be as strong and vigorous as ever; indeed, it was several times remarked, "What a powerful mind! what breadth of culture! what learning!" It was interesting to see how he enjoyed talking about bees and the later improvements. In fact, he was more enthusiastic than many of the younger bee-keepers. In spite of the fact that age is usually conservative, Mr. Langstroth seemed to be thoroughly alive to the value and importance of the *later* improvements and developments. To illustrate: Said he, with his old-time fervor, "If *money* is to come from *honey*, manipulation must be reduced to a minimum." He indorsed thoroughly the idea of handling hives more and frames less; of using out-apiary hives; hives with self-spacing frames; hives that can be manipulated on the plan hinted at in the quotation. He still thought the new Heddon hive best for the expert and advanced bee-keeper; but he did not believe it would ever come into general use with beginners and those farmers who keep only a few bees. For the mass of bee-keepers, the self-spacing Langstroth frame and system would be used. Indeed, he even questioned whether many farmers were advanced enough to have even movable-frame hives; because, even with such hives they *would* not handle the frames if they *could*.

In speaking of his own invention he very modestly remarked that others before him had come very near giving to the world the Langstroth hive; and that, if he had not invented it, it would have come very soon. Debeauvoy, for instance, had invented a hive that needed only some very slight changes in order to make a practical hive—such a one as *he* (Mr. L.) gave to the world, and that any practical bee-keeper of to-day could have shown in five minutes how to make so that it would be practicable.

In our next issue we will try to give you a little more about Mr. Langstroth, and a little better idea of his personal appearance. On the day he arrived, toward evening we took out our best camera and "shot" him in several characteristic attitudes—one or two of which we hope to present to our readers.

HORIZONTAL WIRING AND LIGHT BROOD FOUNDATION; ELECTRICITY IN APICULTURE.

On page 428 of our issue for June 1 we expressed the fear that the light brood foundation on horizontal wires would buckle enough to make trouble. As we had already advocated the use of light brood in preference to any other grade, we felt in duty bound to notify our readers at once. Well, since that time those very same frames of foundation, about which we wrote as having a tendency to buckle, are developing into nice combs; so those who may have gone ahead and followed our advice will probably find that they will get good combs, after all. Taking it all in all, however, we would rather recommend the use of *medium* brood foundation on the horizontal wires. If, however, you have a lot of light brood it will be better to put it on *four* horizontal wires than three.

By the way, we are still using electricity for imbedding wires into foundation. It is such a saving in time over the old way, and so much better in its results, that we shall never think of going back to the old plan. Neither is it so expensive that the average bee-keeper can not afford to use it.

UNCAPPING COMBS BY ELECTRICITY.

The Rambler, now at Riverside, Cal., since we have been advocating the use of electricity for imbedding wires, cherishes the idea of using the same invisible force and heat for uncapping combs for extracting. His plan is, to run a current of electricity through a small thin-bladed knife or knives, strong enough to heat them, and thus greatly facilitate the operation of uncapping. Although we have been and still are very enthusiastic on the subject of electricity, and have given it considerable study, it seems to us, after giving the matter due consideration, that the strength of the current required will make battery power too expensive to be feasible; for, usually, extracting is not and can not be done where the proper current can be taken off from some electric-light wire. Mr. James Heddon is somewhat of an electrician, and possibly he can give us some suggestions along this line.

We have just received the First Annual Report of the Illinois State Bee-keepers' Association. It is neatly printed, bound in cloth, and contains 175 pages. It comprises both the proceedings of the Illinois State Bee-keepers' Convention and those of the Northwestern. All in all it is the most elaborate and complete report of any bee-keepers' convention ever before issued. The Illinois State Bee-keepers' Association is a long way ahead of the rest of us, in that they have an annual appropriation of $500 with which to get out a report. It is too bad that we have not a similar appropriation for our North American.

JACOB T. TIMPE, OF GRAND LEDGE, MICH.

In the June issue of our esteemed cotemporary, the *American Bee-keeper*, the editor has seen fit to warn the bee-keeping public against sending Mr. Timpe any more money. While this is a hard thing to do, we feel sure that the *Bee-keeper* has done right. It is true, friend Timpe has probably had bad luck; but my impression is, that anybody will have bad luck who receives money and puts it into his own pocket, and then writes his customers that he is too poor or too unfortunate to send it back. His fault is in not sending the money back when he found he could not send the queens. It may be claimed that others have done the same thing, and have not been published. Well, this may be true; but I think our bee-journals have been at fault, perhaps, in this very line. Mr. Timpe not only kept the money, but failed to answer letters of inquiry from those whom he had defrauded. It is true, he did send out a sort of general printed letter; but printed letters don't answer under such circumstances. I believe our bee-journals have tried to exercise charity, and have been backward about complaining; but I am impressed just now that the man who receives money for the goods he advertises, and *keeps* it, when he finds himself unable to send the goods, should be shown up promptly and without much mercy. Of course, he should have fair warning; but just as soon as he confesses that he is either unwilling or unable to borrow money and protect his reputation, just so soon should the public be warned. A. I. R.

LITHOGRAPH LABELS

In 12 Colors, at $2.00 per 1000.

The 12 colors are all on each label. They are oblong in shape, measuring 2⅛x2⅝. They are about the nicest labels we ever saw for glass tumblers, pails, and small packages of honey. We will mail a sample, inclosed in our label catalogue, free on application, and will furnish them postpaid at the following prices: 5 cts. for 10; 25 cts. for 100; $1.00 for 500; $1.75 for 1000. A. I. ROOT Medina, O.,

Black and Hybrid Queens For Sale.

I have a few mismated Italian queens, that are No. 1 queens; will sell for 35c; 2 for 60c; black queens, 20c; 3 for 50. Safe arrival guaranteed.
JAMES M. GORDON, Belmont, Belmont Co., Ohio.
12-16db

Mismated golden queens, 50c; hybrids and blacks, 15c. A. B. MAN, Wallaceburg, Ark.

5 or 6 hybrid queens that were raised last summer for sale at 25 cents each. Address
F. W. FAIRBANKS, Rockland, Plymouth Co., Mass.

Hybrid queens for sale at 30c each, 4 for $1.00. I send out none but first-class queens, and guarantee safe arrival. PLINNY SHEPARDSON, Freeport, Wash.
11-12d

I have a few mismated 5-banded queens at 40c; hybrids, 30c; clipped queens, 20c each.
12tfdb CHAS. H. THIES, Steeleville, Ill.

Wants or Exchange Department.

Notices will be inserted under this head at one half our usual rates. All advertisements intended for this department must not exceed five lines, and you must SAY you want your adv't in this department, or we will not be responsible for errors. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To exchange one E. Setter (bitch, five Scotch collie dogs (thoroughbreds and pedigreed) 10 pairs White Fantail pigeons, for poultry, incubator, bees, brood foundation, or offers.
F. ANDREWS, Espanola, N. M.

WANTED—to exchange a Barnes combined foot-power saw, 8 vols. GLEANINGS, bees in Root's chaff hives, for saw-table, band or jig saw, for light power. M. LUDTMAN, Hannibal, O.

TO exchange.—Bee-hives for beeswax. 9-12db
WM. IDEN, Etna Green, Ind.

WANTED.—A man to care for stock, bees, and fruit-trees, on shares, in the Indian Territory. For further information apply to
10-11-12d MR. L. C. AXTELL, Roseville, Ill.

WANTED.—To exchange one Joliet Safety bicycle, high grade, latest pattern, ball bearings, diamond frame, cushion tires, nearly new; one 49-inch Columbia, best high wheel made, good as new, very cheap; one Odell typewriter; 150 good second-hand hives for L. frame; one extractor for L. frame, for wax, honey, supplies, or offers. 10tfdb
J. A. GREEN, Dayton, Ill.

WANTED.—A 3 or 4 H. P. Boiler, also regulator for ½-inch pipe. Would like to exchange Given dies, L. size, with press, etc. Address
H. E. HARRINGTON, Walden, Caledonia Co., Vt.

WANTED.—Bees or queens in exchange for spring-tooth harrows (new) manufactured by Whipple Harrow Co., of St. Johns, Mich., or will buy for cash if prices are right. EZRA BAER, Dixon, Ill. 12d

WANTED.—To exchange a new Novice extractor, never been used, has 60-lb. space below the reel. Price $7.00; will exchange for beeswax, honey, repeating rifle, or any thing I can use. Write at once; state what you have to trade, with price, quality, etc. A. A. WEAVER, Warrensburg, Mo.
12-13d

WANTED.—To exchange, Sun type-writer, cost $12, for bees in Dovetailed hives. 12d
S. WASHBURN, Minneapolis, Fair Oaks, Minn.

E. POINTER and setter pups for a Barnes foot-power saw, or best offers. C. H. NESMITH,
12d Bluford, Ill.

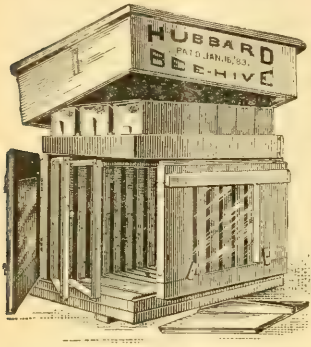
WANTED.—To exchange a good incubator, for bees or offers. J. T. STEGNER,
12-13d Redwood Falls, Minn.

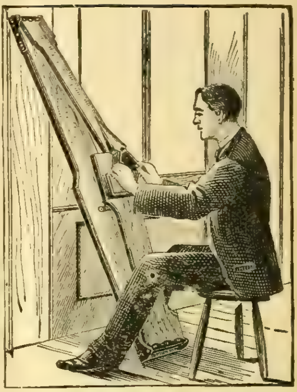
WANTED.—To exchange pure Italian queens, 3 or 5 banded. Write what you have to exchange.
F. C. MORROW, Wallaceburg, Ark.

WANTED.—To exchange 25 new "Hunt" hives (chaff), about one half nailed together, balance in flat; 250 good straight brood or extracting combs, built from full sheets of foundation; 100 Hoffman frames, wired, and a quantity of other frames; also a honey-extractor, used but one season, and in first-class condition; also 10 Langstroth Portico hives, single wall, in good condition, for Safety wheel, or offers. Reasons for selling hives, etc., have sold all my bees. GEO. N. CORNELL,
Lock Box 6. Northville, Mich.

100 2-FRAME nuclei wanted before July 10th, on frames 9⅛ deep by either 17⅝ or 13½ long; two frames must be well covered with bees, and filled with sealed brood. FRANK MCNAY,
12d Mauston, Wis.

HUBBARD BEE HIVE AND SECTION PRESS.





If you want to handle bees **easy** by sitting down to it, here is the hive. Frames fixed and variable distance combined. No wrenching or prying or scraping of combs together. Many thousands in use giving excellent satisfaction.

Live Agents make Splendid Profits.

Large Circular of 20 pages free.

This **SECTION PRESS** (Pat'd) is sold at **$2.50** by the leading supply dealers. Ask them for it or send to me. A boy can put together 800 to 1000 sections an hour and have them **true.** Bend section around, put in press, give a little push —'tis done. Will last a life-time and is bound to please you.

Send for my Circular about Hive, Press, Foundation Fastener, Sections, Foundation, Italian Queens, Extractors, Veils, Honey Crates and Cases, &c., &c. It will interest you. Or send **15 cents** for Practical Book for Beginners— **"First Principles in Bee Culture."** 11th thousand just issued.

G. K. HUBBARD, 277 Harrison St., Fort Wayne, Ind.

3-10db ☞In responding to this advertisement mention Gleanings.

BEES 350 COLONIES OF BEES. 1,000,000 Sections. HIVES, Smokers, Queens, etc. Send for price list to E. T. FLANAGAN, Box 783, Belleville, Illinois.

SUPPLIES. Langstroth Bee-hives, and every thing needed in the bee yard; 30-page catalogue free. **"BUSY BEES,"** a book telling how to manage them, 10 cents in stamps. **WALTER S. POUDER,** 5-12db

175 E. Walnut St., Indianapolis, Ind.

Please mention this paper.

PERSONS WANTING

APIARIAN SUPPLIES

Would do well to send to W. E. Clark, Oriskany, Oneida Co., N. Y. Send for illustrated price list. Dealers should send for Dealers' list for Smokers. 6-12db

☞In responding to this advertisement mention Gleanings.

Down Go the Prices!

Must Be Sold!

100,000 No. 1 One-Piece Sections at $3.00 per M.
In 5000 Lots, - - - $2.80 per M.

Fifty Colonies of Italian Bees; 1 Colony, $6.00; 5 Colonies, $5.00 each. Tested Italian Queens in May, $1.50 each. Tested Italian queens, last year's raising, $1.00 each. Comb Foundation and a full line of Apiarian Sup-plies. Twenty-page price list free.

J. M. KINZIE,
9-12db **Rochester, Oakland Co., Mich.**

☞In responding to this advertisement mention Gleanings.

PUNIC BEES Untested Queens from the original and only imported stocks in the country; *$2.00 each.* Pratt's swarmer, by mail, 60c; 2 for $1.00. **E. L. PRATT,** 9-12db **Beverly, Mass.**

Please mention this paper.

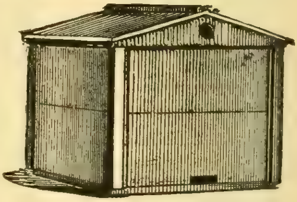
My Catalogue of APIARIAN SUPPLIES for 1892 is free; My Pamphlet, "HOW I PRODUCE COMB HONEY," by Mail, 5 cts.

GEO. E. HILTON, Fremont, Mich.

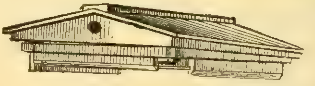
Please mention Gleanings. 2-13db

SAVE MONEY.—Send to J. P. H. Brown, Augusta, Georgia, for his price list of supplies. Hives and foundation at wholesale rates. 4tfdb

Great Crash in Prices!



From 10 to 25 % discount from former prices. My 40-page catalogue for 1892 gives reasons. I offer a new-style chaff hive at one-half the cost of other styles, and just as good. This hive can be taken apart almost instantly,



and packed up in small space. It can be used on any hive (see cut). Don't fail to get my 32d annual price list. I mean business, and am bound to sell as good as the best, and at equally low prices.

Address **WM. W. CARY,**
6tfdb **Coleraine, Mass.**

Please mention this paper.

VIOLINS GUITARS MANDOLINS MURRAY & HEISS. CLEVELAND OHIO. MUSICAL GOODS OF ALL KINDS. CATALOGUE FREE

☞In responding to this advertisement mention Gleanings.

A POULTRY BOOK Called "The Chicken Business, and How to Make it Pay." Tells all about it. Finely illustrated, practical, and original. Price 50 cents, postpaid. An illustrated circular free, giving particulars about the book, and prices of pure-bred fowls and eggs for sale by the author. 4tfdb

H. B. GEER, Nashville, Tenn.

☞In responding to this advertisement mention Gleanings.

Bee-Hives and Sections

A specialty. Foundation, Smokers, etc., in stock. Send for new list, free.

4tfdb **W. D. SOPER, Jackson, Mich.**

Please mention this paper.

GOLDEN HONEY QUEENS.

Queens in June, untested, $1.00; ½ doz., $5.00; tested, $1.70; select tested, $2.50; extra select, $4.50; the very best, $8.00; imported, $6.00. Satisfaction guaranteed. **LEININGER BROS., FT. JENNINGS, OHIO.**

Our Golden and Leather Colored Italian Queens.

Bred for Business.

Tested, in June, $1.25; untested, 75c; 3 for $2.00. Our stock consists of 300 colonies devoted to bees and queens for the trade. **Orders filled by return mail.** Send for catalog of supplies, etc.

JNO. NEBEL & SON, High Hill, Mo.

P. S. A. J. Fields, of Wheaton, Ind., writes: "The queen and bees received of you last spring made 147 lbs. of comb honey, and took first premium at three fairs." 8tfdb

☞In responding to this advertisement mention GLEANINGS.

FREE! My new price list of **Pure Italian Bees, White and Brown Leghorn Chickens, White and Brown Ferrets, and Scotch Collie Pups.** Address
N. A. KNAPP, Rochester, Lorain Co., O.
8tfdb

Queens! Queens! Queens!

If you want the best bees you ever saw in every respect, try my strain of Italians. Result of eight years' careful breeding. Warranted queens, each, $1.00; six, $4.50; doz., $8.00. Safe arrival guaranteed. If you prefer, pay on arrival. Make money orders payable at Apollo. ***F. B. YOCKEY,***
11-12d ***NORTH WASHINGTON, WESTM'D CO., PA.***

☞In responding to this advertisement mention GLEANINGS.

The queen I got of you has more brood than any colony I have. A. MILLER, Trail, O.

Our Five-Banded Italians

Are the bees for business: gentle, and beauties.

FREE! The Amateur Bee-keeper, 52 pages; price 25c; one given free each day to the one sending the most money for queens. One warranted queen in May, $1.10; 6 for $5.50. June, $1.00 each; 6 for $5.00. Entire satisfaction guaranteed. 1-24db
S. F. & I. TREGO, Swedona, Ill.

☞In responding to this advertisement mention GLEANINGS.

TO exchange.—For wax or cash, Standard L. or Heddon N. H. combs, at 5c each. Combs all worker, and in good order. H. D. BURRELL,
10tfdb Bangor, Mich.

SECTIONS.

$2.50 to $3.50 per M. Bee-Hives and Fixtures cheap. **NOVELTY CO.,**
6tfdb **Rock Falls, Ilinois.**

☞In responding to this advertisement mention GLEANINGS

BEES BY THE POUND.

Friends, yesterday I took control of 200 colonies of Italian and hybrid bees, that I will ship you in June and July. $1.25 per lb.; 10 or more, $1.15. Safe arrival guaranteed. Money-order office, Greenville.
MRS. JENNIE ATCHLEY,
11-12d **Floyd, Hunt Co., Texas.**

☞In responding to this advertisement mention GLEANINGS.

Beautiful! Gentle! Prolific!

The Five - Banded Golden Italian Bees.

Send 5c for sample of bees and be convinced. Catalogue free. One queen, June or July, $1.00; six, $5.00.
J. F. MICHAEL,
8-13db ***GERMAN, DARKE CO., OHIO.***

☞In responding to this advertisement mention GLEANINGS.

TESTED ITALIAN QUEENS.

50 tested Italian queens for sale at $1.00 each, to be delivered June 1st to 15th, all raised last fall from an imported, and best select tested queens. Untested queens, July 15th and after, 70c each; 3 for $1.75; 6 or more, 50c each. D. G. EDMISTON,
9tfdb Adrian, Lenawee Co., Mich.

BEESWAX!

Foreign and domestic. Crude and refined.
A stock constantly on hand.
Write for prices, stating quantity wanted.

ECKERMANN & WILL, Syracuse, N. Y.

☞In responding to this advertisement mention GLEANINGS.

500 Colonies of Bees Devoted to Queen-Rearing.

Write for prices on large quantities.

TWO MILLION SNOW - WHITE SECTIONS.

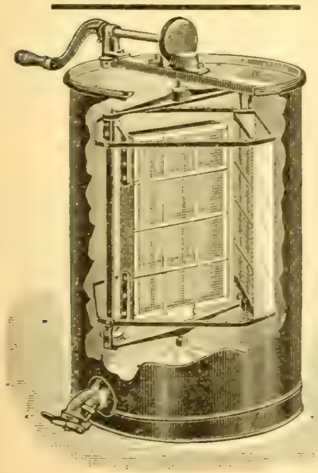
Write for prices on large quantities.

Send for our 24-Page Catalogue of Dovetailed Hives, Smokers, Extractors, Etc.

LEAHY M'F'G CO., Higginsville, Missouri.

Please mention this paper. 5tfdb

A Grand Success.



New Cowan Reversible Honey-Extractor.

May be Reversed Without Stopping the Machine.

Strong, well made in every respect, light, and of convenient size. The can is but little larger than that of the Novice. The gear is beveled, and covered by an iron shield, and the crank outside the can. Frank McNay, of Mauston, Wis., a bee-keeper who produces tons and tons of extracted honey, says of it:

> After carefully examining and trying the Cowan extractor, I have failed to find a weak part, and I do not hesitate to say that it is the best extractor made, both in regard to convenience and durability, and I shall replace all of my five machines with the Cowan as soon as possible.

It is indorsed also by J. F. McIntyre, an extensive extracted honey producer in California; by W. Z. Hutchinson, Dr. C. C. Miller, and others

Price all Complete, Japanned and Lettered, for L. Frame, $10.

A. I. ROOT, MEDINA, OHIO.

JUST OUT! THE ABC OF Ferret Culture.

Containing Full Instructions for the Breeding, Feeding, Care, and Management of this little animal. It tells How to Raise them in the Greatest Numbers, with the least expense. Price ten cents; by mail, 12 cents.

Free! My new price list of pure Italian Bees and Queens, White and Brown Leghorn Chickens, and White and Brown Ferrets, and Scotch Collie Pups. Address **N. A. KNAPP, Rochester, Lorain Co., Ohio.**

☞In responding to this advertisement mention GLEANINGS.

75 Colonies Italian and Hybrid Bees. **$4 per Colony,** f. o. b. cars. Queens all young. Combs straight.
F. L. WRIGHT, Plainfield, Mich.

GOLDEN HONEY QUEENS.

Bred from stock that can not be excelled for honey-gathering, beauty, gentleness, and all that make a desirable bee. Warranted Queens, $1 each; 6 for $5; Select tested and breeding queens after July 1st. Write for sample of bees and prices. Circular free. Address

E. F. QUIGLEY, Unionville, Mo.

☞In responding to this advertisement mention GLEANINGS.

20 Colonies Black Bees

In pattern of Simplicity hives. All full, and working, for $60, on stands.
J. M. OVENSHIRE, D. D. S., Dundee, N. Y.

ITALIAN QUEENS. Tested, $1.25. Untested, 80c. MRS. A. M. KNEELAND,
P. O. Box 77. Mulberry Grove, Bond Co., Ill.

POULTRY. Choice Fowls and Eggs for sale at all times. Finely illustrated circular free. GEER BROS. St. Marys, Mo. 21tfdb

100 ROOT'S DOVETAILED BEE-HIVES, 1892 PATTERN,

For sale at a bargain as long as they last. Write for prices. A. F. McADAMS, Columbus Grove, O.

Untested Queens From Imported

stock, reared by Doolittle's method, 60c. Warranted 75c. Virgins, 45c. Reference, Chas. Matz, Wells-Fargo express agent. ***H. G. QUIRIN, BELLEVUE, HURON CO., O.***

Take this Address

P. L. VIALLON MFG. CO.,
Bayou Goula, La.,

For Beautiful Italian Queens
AND APIARIAN SUPPLIES.

CYPRESS DOVETAILED HIVES A SPECIALTY.

☞In responding to this advertisement mention GLEANINGS.

SAMPLE FREE

of my 1-piece white-poplar sections. Wax worked into foundation by the lb. Samples and prices free.
12d O. H. TOWNSEND, Alamo, Kala. Co., Mich.

JUST OUT!

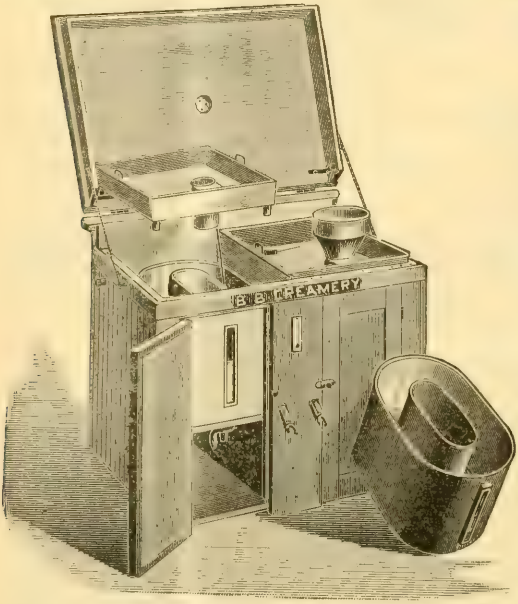
TILE ✠ DRAINAGE.

BY W. I. CHAMBERLAIN, A. M., LL. D.,

Formerly Secretary of the Ohio State Board of Agriculture, and late President of the Iowa State Agricultural College. At present Associate Editor of the Ohio Farmer.

This is a valuable companion to our other rural books. It embraces the experience of forty years of one of our foremost practical agriculturists, who has laid with his own hands over 15 miles of tile. Price 35c; by mail, 40c.

A. I. ROOT, MEDINA, OHIO.



B. B. Creamery.

A. I. Root is making for the B. B. Creamery Co., of this place, the creamery shown in adjoining cut. No doubt many of his readers keep a small dairy. If so, you should investigate this most invaluable aid to dairymen. Several have testified that they have secured enough more cream to pay for the creamery in six months. Besides, think of the amount of labor saved. This is the most successful creamery to use without ice. You notice one of the cans standing in front. The milk is put between the two walls of this can, and the water comes up the center, all around the outside, above and below, giving the greatest cooling surface. It being only 5 inches from inner to outer wall, it leaves no milk further than 2½ inches from the cooling surface. Write for circular giving further particulars.

PRICE LIST.

No.	Capacity of can.	No. of cows.	Price.
0	16 quarts.	1 to 2.	$22.50
1	30 "	2 to 4.	30.00
2	60 "	4 to 8.	40.00
3	75 "	8 to 12.	50.00

Price includes milk-strainer, glass thermometer, faucet, brush, etc. We give 5 per cent off for cash, and make special terms to dealers and agents. Address

B. B. Creamery Co., Medina, Ohio.

Foundation, Wholesale and Retail.

If you would like to see how nice foundation can be made, send for free samples. Special prices to dealers on Foundation and Sections, etc. Free price list of everything needed in the apiary. 6tfdb (Near Detroit.)
M. H. HUNT, Bell Branch, Mich.

IMPORTANT NOTICE

Japanese Buckwheat is advanced this date $1.25 per single bushel; $2.40 for 2 bushels; $11.50 for 10 bushels; ½ bushel, 75 cents; 1 peck, 40 cents. Bags included.

A. I. ROOT, Medina, O.
June 10, 1892.

Bee-Keepers' Supplies.

Hives, Honey-Cases, Sections, and Frames. We are the only concern in Southern California who make a

SPECIALTY OF BEE-KEEPERS' MATERIAL.

Agents for the white basswood 1-lb. sections. Send for catalogue and price list.

6-13db **Oceanside Mill Co., Oceanside, Cal.**

☞In responding to this advertisement mention GLEANINGS.

DON'T STOP ME! I am going to send at once to C. W. PHELPS & CO.'S Wholesale and Retail Foundation Factory, Binghamton, N. Y., for a free sample of Honey Comb Foundation, and buy all of my Bee Supplies of them. Its THE place.

Please mention this paper.

IMPORTED ITALIAN QUEEN, $3 50; UNTESTED, $1.00.
W. C. FRAZIER, Atlantic, Iowa.

ITALIAN QUEENS FOR SALE. Untested, $1.00; tested, $1.50. J. C. PROVINS, MASONTOWN, PA.

PUNIC QUEENS

FROM IMPORTED MOTHERS. Each, $2.00. This is a fine race of bees, and will give better results than any other race or strain. Ready to mail May 25.

HENRY ALLEY, Wenham, Mass.

PAINT FOR BEE-HIVES.

After much experimentation, and a careful study into the paint question, we offer a mixed

Paint Prepared Especially for Bee-Hives.
It will not Chalk or Flake off.

We guarantee it to be free from adulterants, such as whiting, barytes, lime, and other substitutes that do not add to the enduring qualities of the paint. Our paint is made of strictly pure lead, strictly pure zinc, and genuine French ocher of about equal proportions, mixed in pure linseed oil. It is generally recognized that there is no pigment more permanent than French ocher; and this, combined with zinc and lead, makes a most durable combination. The resultant tint is a pale straw color. Price: Pint, 35c; quart, 60c; half-gallon, $1.00; gallon, $1.75. Half a gallon will cover ten No. 1 Dovetailed hives two coats.

A. I. ROOT, Medina, O.

Muth's Honey-Extractor.

Square Glass Honey-Jars,
Tin Buckets, Bee-hives.
Honey-Sections, &c., &c.
Perfection Cold-Blast Smokers.

APPLY TO
CHAS. F. MUTH & SON, Cincinnati, O.

Send 10-ct. stamp for "Practical Hints to Bee-keepers."
Please mention this paper.

Good Queens Cheap.

300 tested Italian queens, raised last season, for sale at $1; $10 per doz. A few hybrids at 25c each. They will be shipped about June 15th to 25th, or later if desired. Have order booked now and send money when you want them. My bees have been *BRED FOR BUSINESS*, and these are bargains. Nuclei and full colonies at very low rates.

J. A. GREEN, Dayton, Ill.

☞In responding to this advertisement mention GLEANINGS.

WESTERN BEE-KEEPERS' SUPPLY HOUSE.

ROOT'S GOODS can be had at Des Moines, Iowa, at ROOT'S PRICES The largest supply business in the West. Established 1885. Dovetailed Hives, Sections, Foundation, Extractors, Smokers, Veils, Crates, Feeders, Clover Seeds, etc. Imported Italian Queens. Queens and Bees. Sample copy of our Bee Journal, "THE WESTERN BEE-KEEPER," and LATEST CATALOGUE mailed FREE to Bee-keepers.

JOSEPH NYSEWANDER,
Des Moines, Iowa.

In writing to advertisers please mention this paper. 4tfdb

GOLDEN CARNI-ITALIANS.

The largest, most beautiful, gentle, and industrious bees; try them and be convinced. Queens, $1 each. Sample bees, 10c. Send for circular giving full description. 11tfdb J. A. ROE, UNION CITY, IND.

☞In responding to this advertisement mention GLEANINGS.

ITALIAN QUEENS.

Untested, 75 cents. Twenty for $12.00. Tested, $1.00.

H. FITZ HART,
6tfdb **Avery, Iberia Parish, La.**

☞Please mention GLEANINGS.

ELLISON'S FINE ITALIAN QUEENS and Bees.

PRICES FOR JUNE AND AFTER.

1 untested queen	$ .75
3 " "	2.00
1 tested queen	1.50
3 " "	4.00
Select Tested, each	3.00

Two-frame Nucleus with any queen, $1.50 each extra. Safe arrival guaranteed. **W. J. ELLISON,** 10d
Catchall, Sumter Co., S. C.

Please mention this paper. 11-12-1-14

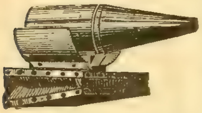
Cash for Beeswax!

Will pay 25c per lb. cash, or 28c in trade for any quantity of good, fair, average beeswax, delivered at our R. R. station. The same will be sold to those who wish to purchase, at 32c per lb., or 35c for *best selected wax.*

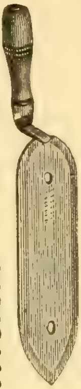
Unless you put your name *on the box*, and notify us by mail of amount sent, I can not hold myself responsible for mistakes. It will not pay as a general thing to send wax by *express.*

A. I. ROOT, Medina, Ohio

❧BEST ON EARTH❧



ELEVEN YEARS WITHOUT A PARALLEL, AND THE STANDARD IN EVERY CIVILIZED COUNTRY.



Bingham & Hetherington

Patent Uncapping-Knife,

Standard Size.

Bingham's Patent Smokers,

Six Sizes and Prices.

Doctor Smoker,	3½	in., postpaid	$2.00
Conqueror "	3	" "	1.75
Large "	2½	" "	1.50
Extra (wide shield)	2	" "	1.25
Plain (narrow ")	2	" "	1 00
Little Wonder,	1¾	" "	65
Uncapping Knife.....			1 15

Sent promptly on receipt of price. To sell again, send for dozen and half-dozen rates.

Milledgeville, Ill., March 8, 1890.

SIRS:—Smokers received to-day, and count correctly. Am ready for orders. If others feel as I do your trade will boom. Truly, F. A. SNELL.

Vermillion, S. Dak., Feb. 17, 1890.

SIRS:—I consider your smokers the best made for any purpose. I have had 15 years' experience with 300 or 400 swarms of bees, and know whereof I speak. Very truly, R. A. MORGAN.

Sarahsville, Ohio, March 12, 1890.

SIRS:—The smoker I have has done good service since 1883. Yours truly, DANIEL BROTHERS.

Send for descriptive circular and testimonials to

7tfdb **BINGHAM & HETHERINGTON, Abronia, Mich.**

☞In responding to this advertisement mention GLEANINGS

WANTED—LADY OR GENT IN EACH county to distribute and collect for Brabant's ladies' toilet cases; 238 articles, worth $1; will send sample and full particulars by mail for 35c in stamps; returnable if not satisfactory; territory free; $3 to $5 per day easily made. Address J. C. FRISBEE, general agent, 172 Maple St., Denver, Col. Reference, A. I. Root, Medina, O. 8-12db

☞In responding to this advertisement mention GLEANINGS

SECTIONS.

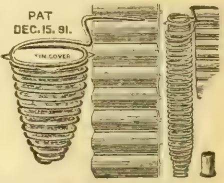
Snow-white Sections,
Cream Sections,
No. 2 Sections.
Finest goods made.
We have a large stock on hand, and can fill small and large orders promptly.

G. B. LEWIS CO.,
9tfdb *Watertown, Wis.*

Please mention this paper.

CONTROL YOUR SWARMS!

N. D. WEST'S SPIRAL WIRE QUEEN-CELL PROTECTORS AND CAGES.



N. D. West's Spiral Wire Queen-Cell Protectors will do it, and you can RE-QUEEN your apiary during the swarming season. Pronounced the Best by such men as CAPT. J. E. HETHERINGTON, Cherry Valley, N.Y.; P. H. ELWOOD, Starkville, N. Y., and others. Cell-Protectors, $3.00 per 100, or 12 for 60c, by mail. Cages, $5.00 per 100, or 12 for $1.00, by mail. Samples of both, with circular explaining, 25 cts. The cages are used for hatching queens in any hive, and are the Best Bee-Escape in use. Address 8-9-10d

N. D. WEST, Middleburgh, Schoharie Co., N. Y.

Please mention this paper.

TAKE NOTICE!

BEFORE placing your orders for SUPPLIES, write for prices on One-Piece Basswood Sections, Bee-Hives, Shipping-Crates, Frames, Foundation, Smokers, etc.

PAGE & KEITH,
14tfdb New London, Wis.

Please mention this paper.

J. C. SAYLES,

HARTFORD, WIS.,

MANUFACTURES APIARIAN SUPPLIES OF EVERY DESCRIPTION. CATALOGUE FREE TO ALL. SEND YOUR ADDRESS.

3tfdb Please mention this paper.

DOVETAILED HIVES, SIMPLICITY HIVES,

SECTIONS, EXTRACTORS, ETC.

A FULL LINE OF

BEE-KEEPERS' SUPPLIES.

60-PAGE CATALOGUE. 1tfdb

J. M. JENKINS, WETUMPKA, ALABAMA.

☞In responding to this advertisement mention GLEANINGS.

ROOT'S GOODS FOR THE EAST.

Bee-Keepers of the East should

Bear In Mind that we have established at Syracuse an **Eastern Branch**

where our Bee-keepers' Supplies are kept for sale, and prompt shipment. You can save time and freight by ordering from our Eastern Branch. We have engaged Mr. F. A. Salisbury to take charge of this business, and he will treat you well. He will be pleased to send you a list of goods kept in stock.

Address all orders,

EASTERN BRANCH, F. A. SALISBURY, Agent, Syracuse, N. Y.

TESTED ITALIAN QUEENS, 80c

IN JULY AND AUGUST. In June, $1.00 each. Mismated queens, 40 cents.
J. C. WHEELER PLANO, ILL.

I TELL you what, Jones, **Levering Bros.** sell the best goods and at the lowest price of any one I've struck yet. The largest and best equipped

Bee - Hive Factory

in the West. The Dovetailed Hive and New Hoffman self-spacing Frame a specialty. Every thing used by practical bee-keepers at wholesale and retail. Send for their free Illustrated Price List, and save money. Supply Dealers, send for their Wholesale List. Address

LEVERING BROS.,
6-15db **Wiota, Cass Co., Iowa.**

Please mention this paper.

Sections at $3 per 1000. These are perfectly smooth, and first-class. Brood foundation 45 cts. per lb. All supplies equally low. Goods shipped direct from New York city. 1-18dt.

I. J. STRINGHAM,
92 Barclay St., N. Y.

☞In responding to this advertisement mention GLEANINGS.

Yellow, Extra, Excellent

B Italian Queens for sale in June at Chenango Valley Apiary **E** Tested, $1.50 Untested, $1 Order early Send for list **E** Two-frame Nucleus with Queen, $2.00. Don't pass by **S**

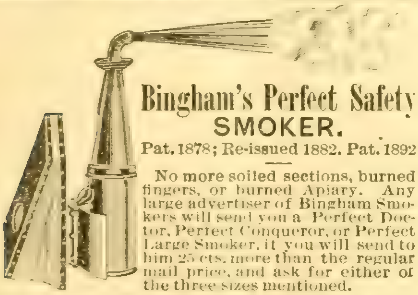
MRS. OLIVER COLE, Sherburne, Chenango Co., N. Y.
9tfdb Please mention this paper.

BEE-HIVES, Dovetailed or Otherwise.

All Kinds of Bee Supplies.

Write for free catalogue. **W. H. PUTNAM,**
8-13db **River Falls, Pierce Co., Wis.**

☞In responding to this advertisement mention GLEANINGS.



Bingham's Perfect Safety SMOKER.

Pat. 1878; Re-issued 1882. Pat. 1892

No more soiled sections, burned fingers, or burned Apiary. Any large advertiser of Bingham Smokers will send you a Perfect Doctor, Perfect Conqueror, or Perfect Large Smoker, if you will send to him 25 cts. more than the regular mail price, and ask for either of the three sizes mentioned.

Bingham & Hetherington, Abronia, Mich.

☞In responding to this advertisement mention GLEANINGS

LEATHER-COLORED ITALIAN QUEENS.

One untested, $1.00; six, $5.50; twelve, $10.00; one tested, $1.50; six, $8.00; twelve, $15.00; selected for breeding *early*, each, $2.50; one year old tested, *in June only*, $1.25; six, $7.00; twelve, $13.00. Two-year-old queens, each, 50c. Descriptive catalogue mailed free on application.

8-13db **A. E. MANUM, Bristol, Vt.**

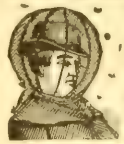
☞In responding to this advertisement mention GLEANINGS

Italian Bees and Queens For Sale.

Untested queens, $1.00; tested, $1.50. Bees, $1.00 per lb. Colony, $5.00. Also barred Plymouth Rock eggs for sitting, $1.00 per 13.

7-16db MRS. A. A. SIMPSON, Swarts, Pa.

GLOBE BEE-VEIL



By Mail for $1.00.

A center rivet holds 5 spring-steel cross-bars like a globe to support the bobinet Veil. These button to a neat brass neck-band, holding it firmly. It is easily put together; no trouble to put on, or take off. An absolute protection against any insect that flies. Will go over any ordinary sized hat; can be worn in bed without discomfort; fits any head; does not obstruct the vision; folds compactly, and can be carried in the pocket; in short, it is invaluable to any one whom flies bother, mosquitos bite, or bees sting.

Extra Nets, 50 Cents Each.

THOMAS G. NEWMAN & SON,
199 Randolph St., Chicago, Ill:

Bee - Keepers' ❋ Supplies.

We are prepared to furnish bee-keepers with supplies promptly and at lowest rates. Estimates gladly furnished, and correspondence solicited. Our goods are all first-class in quality and workmanship. *Catalogue sent free.* Reference, First National Bank, Sterling, Ill. Address 1-24db

WM. McCUNE & CO.,
Sterling, Illinois.

☞In responding to [illegible] ion GLEANINGS

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5 CTS. will get a sample cage of my 5-banded bees; 1 untested 3-banded, 60c; six for $3.00; 1 5-banded, 75c; six for $4.25. Full colonies, nuclei, and supplies cheap; catalogue free.

12tfdb **CHAS. H. THIES, Steeleville, Ill.**

Please mention this paper.

---

500 Colonies of Bees Devoted to Queen-Rearing.

Write for prices on large quantities.

TWO MILLION SNOW-WHITE SECTIONS.

Write for prices on large quantities.

Send for our 24-Page Catalogue of Dovetailed Hives, Smokers, Extractors, Etc.

LEAHY M'F'G CO., Higginsville, Missouri.

Please mention this paper. 5tfdb

WHY, YES, EVERYBODY KNOWS that it pays to purchase their HONEY-COMB FOUNDATION at C. W. PHELPS & CO.'S Wholesale and Retail Foundation Factory. They sell heavy for Brood, 45c.; thin for Comb Honey, 55c. They deal in all kinds of Apiarian supplies. Their customers are always pleased, for their work is good and prices reasonable. Send for free samples Foundation and price-list of Bee supplies. Address C. W. PHELPS & Co., 74 Pettit street, Binghamton, N. Y.

A Four-Color Label for Only 75 Cts. Per Thousand.

Just think of it! we can furnish you a very neat *four-color* label, with your name and address, with the choice of having either "comb" or "extracted" before the word "honey," for only 75 cts per thousand; 50 cts. per 500, or 30 cts. for 250, postpaid. The size of the label is 2⅛x1 inch—just right to go round the neck of a bottle, to put on a section, or to adorn the front of a honey-tumbler. Send for our special label catalogue for samples of this and many other pretty designs in label work.

A. I. ROOT, Medina, O.

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SPECIAL NOTICES.

HONEY WANTED.

We are entirely sold out of both comb and extracted honey, and should be pleased to receive offers. We have a demand for only the best grade. If you have any new comb honey to offer yet, let us hear from you, with quantity, and price you ask. We can use either new or old extracted honey of good quality. Mail sample, naming quantity and price, and tell how put up. In this connection we desire to call your attention to the screw-top mailing-block in another column.

OUR NEW TOMATO-BOOK.

Sixty-four pages of this work are now printed and bound together in convenient form for reference. This book gives the most complete directions for making hot-beds of every description, perhaps, of any thing now in print. It also includes the use of cloth, glass, and even boards for covering the beds, and considers all the practical appliances in use for growing plants of every description under protection, not only in our locality, but away down south and away up north. The price of the work is 40 cts., postpaid by mail. If you send for it now you will get the advance sheets as fast as they come from the printing-press, and the complete book when finished besides.

JAPANESE BUCKWHEAT.

Our call for offers on Japanese buckwheat in last number has revealed the fact that there is a good deal of it to be had. At least a thousand bushels have been offered us, and some at such a price that we are able to sell at the old figure given in our catalogue, except that you must pay extra for bags. This will make the prices, including bags, as follows: 1 bush., $1.20; 2 bush., $2.10; 10 bush. or over, $1.00 per bushel. We have secured a good supply, and can fill orders promptly at above figures. We sowed some as late as August 10, some years ago, and matured a crop of seed, so there is time to send for a month yet; although if you can it is best to get it in by the 15th to 20th of July, to be sure of maturing the seed before early fall frosts.

STRAWBERRY-PLANTS, ETC.

There is a short period during the last of June and first of July, while strawberries are fruiting, when it is not advisable to ship plants, for the *young* plants have not yet made sufficient root to bear transportation. You can, however, set them out during this period if the young plants are grown on your own grounds or on those of a neighbor near by, so you can move them with sufficient dirt adhering to the roots. During the coming fall we shall give place to three new varieties; viz., Parker Earle, Edgar Queen, and Warfield. We may drop some of our old ones, but have not decided just which ones to drop, at present writing. For several seasons past, the demand in our locality has been for a berry that would stand wet weather. If now, however, we should have a dry season, or a succession of dry seasons, it might materially change our decision as to what varieties to recommend. We presume we shall have a limited number of plants, rooted enough to send out by the middle of July. Large orders, however, can not well be filled until two weeks or a month later.

SQUARE CANS FOR EXTRACTED HONEY.

I believe bee-keepers generally are learning more and more the advantage of putting up extracted honey for shipment in these square cans. Honey in square cans handles much more satisfactorily than in any other package, according to our experience. We are prepared to furnish you the square cans, f. o. b. at Conneaut, Ohio, St. Louis, Mo., or from here, at the following prices:

Two five gal. cans, boxed with 1½-inch screws, each, 75c; 10, $7.00; 100, $65.00.

Two five-gal. cans, boxed with 1½ and 4 in. screws, each, 85c; 10, $8.00; 100, $75.00.

One five-gal. can, boxed with 1½-inch screws, each, 45c; 10, $4.20; 100, $40.00.

One five-gal. can, boxed with 1½ and 4 inch screws, each, 50c; 10, $4.70; 100, $45.00.

Ten one-gal. cans, boxed with screws, each, $1.50; 10, $14.00; 100, $130.00.

One hundred one-gal. cans in one box, $12.00.

WINTER OR EGYPTIAN ONION-SETS NOW READY.

If these are set out at once they will make a large growth before winter sets in; and, under favorable circumstances, will divide up, making many onions where you planted only one set; so you will see there is a big advantage in getting them in early. Of course, they are now green, for we pick them from the stalks just as they are sent out, and they are expected to be planted at once. If you wish to keep them for any length of time before planting, you will need to wait until the sets are more mature and dry. The demand for these sets for many years has been greater than the supply, so you will need to send in your orders early. Prices: 15 cts. per qt., or $1.00 per peck. If wanted by mail, add 10 cts. per qt. extra. This is the only onion, so far as my knowledge extends, that is so hardy as to stand any winter in any locality; and it furnishes onions for market or table use not only weeks but months ahead of any other. In cold-frames and hot-beds, such as I have described, it can readily be grown and marketed *every day in the year.*

BEESWAX DECLINED AGAIN.

The market on beeswax is still growing easier, and we make a further decline of 2 cents per lb. From now till further notice we will pay for average wax, delivered here, 23 cts. cash; 26 in trade. Our selling price will be 29 cts. for average, 33 for select yellow. Our retail price of foundation is reduced 3 cts. per lb., and the table of prices will stand as follows from now till further notice:

TABLE OF PRICES OF COMB FOUNDATION.

When you order, be sure to tell which grade you want, and give price.

Small samples of each grade will be mailed free.

		—Price per lb. in lots not less than -				
NAME OF GRADE.	Sq. ft per lb	1 lb.	10 lbs.	25 lbs.	50 lbs.	100 lbs
Heavy brood fdn.	4 to 5	45	44	43	42	41
Medium " "	5 to 6	45	44	43	42	41
Light " "	7 to 8	48	47	46	45	44
Thin surplus "	10	55	54	53	52	51
Ex. thin " "	11 to 12	65	64	63	62	61
Van Deusen thin flat bottom	12	65	64	55	54	53

For 200 lbs. or over, write for wholesale prices to supply-dealers.

SECOND-HAND MACHINERY.

During the past few months we have bought up several outfits of machinery for making bee-keepers' supplies; and if any of our readers or their friends contemplate putting in machinery we are prepared to fit you out from cellar to garret with everything you need in engines, boilers, machinery, shafting, pulleys, hangers, belting, saws, etc. The following is a partial list of the second-hand machinery we have to sell. If you desire further particulars we shall be pleased to hear from you.

One 20-H. P. Fishkill horizontal engine, rebuilt, and as good as new; would cost new, $400; will sell for $200.

One 5-H. P. horizontal engine and boiler, with engine mounted on boiler, in good running order. Price $150.

One 24-inch two-roll Fay sandpaper machine, nearly new. Price, new, $450; will sell for $175.

One 9-inch cigar-box planer, nearly new; has been used very little. Price, new, $65; will sell for $40.

One V-groove section machine, nearly new. This is our make, old style, with screw-feed; sold some years ago for $75; will sell now for $40.

One cutter-head, with table complete, for cutting entrances to sections. Old style, but nearly new, and in good repair. Price, new, $25.00; will sell for $15.00.

One iron-frame hand-jointer; well worth $25; will sell for $15.

One double-head tenoning-machine, especially arranged for making the combined rabbet and miter joint of the Simplicity hive, but can be used for making sash and window-screen frames, etc. We could not build such a machine, and sell it for less than $150; we will sell this for $60.

One iron-planer, 16x36-inch bed, automatic reversing device to run back and forth. It cost us, second-hand, several years ago, $150; is about as good now as then, but we had to have a larger size. We offer this for $50.

Two extra large saw-tables for general use, to cut off or rip, with counter-shaft attached to frame; worth new, $50 each; will sell for $20 each.

Two four-piece section-machines, as good as new. They cost new, $85 each; we will sell them for $30 each.

Also a large lot of shafting, pulleys, hangers, belting, and saws, too numerous to mention here.

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All advertisements intended for this department must not exceed five lines, and you must SAY you want your adv't in this department, or we will not be responsible for errors. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To exchange a tame fox for a pair of lop-eared rabbits, or offers.
13d B. B. MORRILL, Standstead, P. Q.

WANTED.—To exchange one high-grade Safety bicycle; one 49-inch Columbia light roadster bicycle; one Odell typewriter; tested Italian queens, for wax, honey, or offers. J. A. GREEN,
13tfdb Dayton, Ill.

WANTED.—To exchange golden Italian queens for brood combs or offers. JAS. M. SMITH,
13d Perkiomenville, Pa.

WANTED—To exchange supplies for bees and a small printing-press. I. J. STRINGHAM,
13d 92 Barclay St., New York City.

WANTED—to exchange a Barnes combined foot-power saw, 8 vols. GLEANINGS, bees in Root's chaff hives, for saw-table, band or jig saw, for light power. M. LUDTMAN, Hannibal, O.

WANTED.—To exchange a new Novice extractor, never been used, has 60-lb. space below the reel. Price $7.00; will exchange for beeswax, honey, repeating rifle, or any thing I can use. Write at once; state what you have to trade, with price, quality, etc. A. A. WEAVER, Warrensburg, Mo.

WANTED.—To exchange a good incubator, for bees or offers. J. T. STEGNER,
12-13d Redwood Falls, Minn.

WANTED.—To exchange pure Italian queens, 3 or 5 banded. Write what you have to exchange.
F. C. MORROW, Wallaceburg, Ark.

WANTED.—To exchange 25 new "Hunt" hives (chaff), about one half nailed together, balance in flat; 250 good straight brood or extracting combs, built from full sheets of foundation; 100 Hoffman frames, wired, and a quantity of other frames; also a honey-extractor, used but one season, and in first-class condition; also 10 Langstroth Portico hives, single wall, in good condition, for Safety wheel, or offers. Reasons for selling hives, etc., have sold all my bees. GEO. N. CORNELL,
Lock Box 6. Northville, Mich.

HONEY COLUMN.

CITY MARKETS.

CHICAGO.—*Honey.*—The volume of business is small. We obtain former prices for any thing good in comb. Very little offered. Extracted unchanged at 6, 7, and 8c. Sales are small, as all are running light, awaiting result of new crop. *Beeswax*, 25 to 27.
R. A. BURNETT,
June 18. 161 So. Water St., Chicago, Ill.

ALBANY.—*Honey.*—Comb honey, slow sale and but little to sell as yet. Extracted honey; stock light, some new Florida orange-blossom selling well. *Beeswax.*—Scarce at 28@30c if fine. Consignments solicited. H. R. WRIGHT,
June 24. Albany, N. Y.

KANSAS CITY.—*Honey.*—All the old honey cleared up. Season late. We look for the new crop in about the middle of July.
June 20. HAMBLIN & BEARSS,
514 Walnut St., Kansas City, Mo.

DETROIT.—*Honey.*—No good honey in the commission houses to quote. What is left is very undesirable. A good article would not bring over 12c. Extracted, 7@8c. *Beeswax*, 25@26.
June 20. M. H. HUNT,
Bell Branch, Mich.

BOSTON.—*Honey.*—We quote you our market on honey as follows: 1-lb. comb, white, 12@14, demand very light; extracted, 7@8. No beeswax on hand. BLAKE & RIPLEY,
June 20. Boston, Mass.

SAN FRANCISCO.—*Honey.*—Stocks of old crop are very light; new crop just commencing to come in; crop prospects are poor and estimated considerably lighter than last season. We quote extracted honey, white, 5¾@6c; light amber, 5¼@5½. Comb honey dull; 1-lb. frames, 10@11c; 2-lb., 7@10. *Beeswax*, 22@25. SCHACHT, LEMCKE & STEINER,
June 22. San Francisco, Cal.

CHICAGO.—*Honey.*—Comb honey dull and no demand. Selling finest grade white 15c. With new crop prices will rule firmer. Extracted scarce and in good demand at 7 to 7½c. *Beeswax.*—Selling 26c.
June 20. S. T. FISH & CO., Chicago, Ill.

KANSAS CITY.—*Honey.*—We quote: 1-lb., No. 1, white, 1-lb. comb, 10@12; No. 2, 8@10; No. 1 amber, 10; No. 2, amber, 6@8. Extracted, 5@7. *Beeswax*, 22@25. CLEMONS, MASON & CO.,
June 20. Kansas City, Mo.

ALBANY.—*Honey.*—As reported in last issue, we closed out all of our stock of comb honey; but some other dealers, unable to sell theirs, have turned over their remaining stock to us; but it is selling very slowly, and prices are nominal. Extracted, in moderate demand, at 6@8. *Beeswax*, more plentiful, and price lower, 24@25.
CHAS. MCCULLOCH & CO.,
June 9. Albany, N. Y.

ST. LOUIS.—*Honey.*—We have no changes to note. Extracted honey quite scarce, and in demand in barrels at 5¼@5¾ for light color.
June 21. D. G. TUTT GRO. CO.,
St. Louis, Mo.

NEW YORK.—*Honey.*—No particular change since your last issue, excepting that southern extracted is coming a little more freely, that having a tendency to reduce the price. Southern honey, 60@70c per gallon. *Beeswax*, 25@27 c; 29c per lb. for extra selected. CHAS. ISRAEL & BRO.,
June 23. 110 Hudson St., New York.

PORTLAND.—*Honey.*—There is no demand here now for honey. Everybody using fruit, which is cheap. Stocks are light. There are no changes to note since our last quotations.
LEVY, SPIEGL & CO.,
June 22. Portland, Or.

WANTED.—One hundred thousand pounds choice comb and extracted honey. Name source from which your honey is gathered. Mail samples at once and quote prices. 13tfdb
J. A. BUCHANAN & SONS, Holliday's Cove, W. Va.

The Bee-Keepers' REVIEW For 1892 and a Fine, Young, Laying Italian **QUEEN** for $1.50. The Review Alone, $1.00. The Queen Alone, 75 Cts. For $1.75, the Review, the Queen, and the 50 ct. Book, "Advanced Bee Culture," will be sent. W. Z. Hutchinson, Flint, Mich.

P. S.—If not acquainted with the REVIEW, send ten cents for three late but different issues.

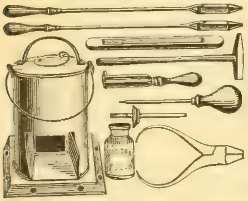
DR. J. W. CRENSHAW, Versailles, - Kentucky,

Offers for Sale

Untested Italian Queens at $1.00 each through May and June; after, 75c each. Safe arrival guaranteed. Queens raised only from Imported mother. Drones only from selected and tested mothers.

Also CELERY PLANTS from July to September, at $2.00 per M. 7-18db

☞In responding to this advertisement mention GLEANINGS.



OATMAN'S

SOLDERING AND REPAIR KIT

Consists of fire-pot, soldering-irons, solder, and soldering-fluid, with tools compl'te as shown in cut, with directions for soldering different metals, and how to keep your soldering-irons in shape. Whole kit, boxed, 12 lbs. Shipped on receipt of $2.00. Agents wanted.

O. & L. OATMAN,
8-7db **Medina, Ohio.**

☞In responding to this advertisement mention GLEANINGS

QUEENS FREE!

Italians, untested, 70 cts. Warranted, 80 cts. Tested, $1.00. **One Choice Breeder Given Away** with each dozen. **Five-Banded Golden Queens, $1 to $2.** Write for lower prices. Satisfaction guaranteed. Bees, 80c per lb. **F. C. MORROW, Wallaceburg, Ark.**

☞In responding to this advertisement mention GLEANINGS.

BEE SUPPLIES RETAIL —AND— WHOLESALE.

Everything used in the **Apiary.** Greatest variety and **largest** stock in the West. New catalog, 54 illustrated pages, free to bee-keepers. **E. KRETCHMER, RED OAK, IOWA.**

In writing advertisers please mention this paper.

CARNIOLAN BEES AND QUEENS. They beat them all. Never have dysentery. All queens reared from select imported mothers. Untested, 50c; 12 for $5.00. Tested, $1.00; 12 for $10.00. Select tested, $1.50. Descriptive circular free. **A. L. LINDLEY, Jordan, Ind.**
8-13db

75c. Golden Queens by Return Mail. 75c.

My Golden Italians are good workers, and gentle. Queens are carefully bred from best stock. Three queens, $2.00; six for $3.50; dozen, $6.00. Safe arrival and satisfaction guaranteed. Money order office, Daytona, Fla.

JOHN B. CASE,
11tfdb **Port Orange, Vol. Co., Fla.**

IF YOU WANT GOLD.

Send for one of my golden Italian queens, raised from the best 5-banded stock, that has been awarded *First Premium* at the *Detroit* Exposition the last two years. Untested queens, $1.00 each; 6 for $5.00. Tested queens, $2.00 each. Breeding queens, $5.00 each.

ELMER HUTCHINSON,
11tfdb **VASSAR, TUSCOLA CO., MICHIGAN.**

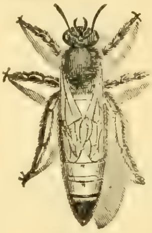
Please mention this paper.

JENNIE ATCHLEY

Will send you either three or five banded Italian queens in June, July, and August, 75c each; $4.20 for 6, or $8.00 per doz. Safe arrival and satisfaction guaranteed.

1tfdb **Floyd, Hunt Co., Texas.**

Please mention this paper.



WESTERN BEE-KEEPERS' SUPPLY HOUSE.

ROOT'S GOODS can be had at Des Moines, Iowa, at ROOT'S PRICES. The largest supply business in the West. Established 1885. Dovetailed Hives, Sections, Foundation, Extractors, Smokers, Veils, Crates, Feeders, Clover Seeds, etc. Imported Italian Queens. Queens and Bees. Sample copy of our Bee Journal, "THE WESTERN BEE-KEEPER," and LATEST CATALOGUE mailed FREE to Bee-keepers.

JOSEPH NYSEWANDER,
Des Moines, Iowa.

In writing to advertisers please mention this paper. 4tfdb

Bee-Hives and Sections

A specialty. Foundation, Smokers, etc., in stock. Send for new list, free.

4tfdb **W. D. SOPER, Jackson, Mich.**

Please mention this paper.

ITALIAN QUEENS.

Untested, 75 cents. Twenty for $12.00. Tested, $1.00. **H. FITZ HART,**
6tfdb **Avery, Iberia Parish, La.**

Bee-Keepers' Supplies.

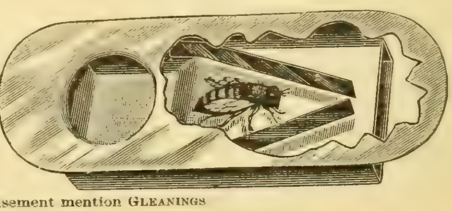
Hives, Honey-Cases, Sections, and Frames. We are the only concern in Southern California who make a

SPECIALTY OF BEE-KEEPERS' MATERIAL.

Agents for the white basswood 1-lb. sections. Send for catalogue and price list.

6-13db **Oceanside Mill Co., Oceanside, Cal.**

Porter's Spring Bee-Escape.



We guarantee it to be the best escape known, and far superior to all others. If, on trial of from one to a dozen, you do not find them so, or if they do not prove satisfactory in every way, return them by mail within 90 days after receipt, and we will refund your money.

PRICES:—Each, by mail, postpaid, with full directions, 20c; per dozen, $2.25. Send for circular and testimonials. Supply dealers, send for wholesale prices.

10tfdb *R. & E. C. PORTER, LEWISTOWN, ILL.*

☞In responding to this advertisement mention GLEANINGS

GLEANINGS IN BEE CULTURE

A Journal Devoted to Bees and Honey and Home Interests.
Illustrated Semi-Monthly
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STRAY STRAWS

FROM DR. C. C. MILLER.

WHAT causes swarming?

LOOK OUT for those empty combs.

DIDN'T IT come hot when it did come?

TO-DAY, JUNE 20, I'm going to put on first supers on strongest colonies, *if* it doesn't rain.

AQUA AMMONIA is a specific for bee-stings, says a late medical journal. Will that old error be kept up for ever?

CUTTING HAY with a binder is highly commended in the *Stockman* by a correspondent who has tried it. Why not?

SOME BEE-KEEPERS, according to correspondents of the *Revue*, have such a keen sense of smell that they can distinguish the odor of a queen.

HICCOUGH can generally be stopped by a few drops of strong vinegar dropped on a small lump of sugar and held in the mouth till dissolved.

DRONES SET UP an exciting roar in the middle of the day, and, in the opinion of the *B. B. J.*, that rouses the bees to swarming. That's worth thinking over.

WE HAVE the *A. B. J.*, *B. B. J.*, *C. B. J.*, and several D. B. J.'s. The number of the latter is increasing, for every bee-journal that gives up the ghost is a D(ead) B. J.

A SPIDER FARM is suggested by Eugene Secor, in *Farmer and Breeder*, as a possibly good thing to be started by bee-keepers who have many empty combs to keep from moths.

THE MYERS SPRAY PUMP is perfection for spraying rose-bushes, or for any thing not too high. I wish it had a nozzle long enough to reach the top of apple-trees, and still throw as fine a spray.

ALLEN PRINGLE (*C. B. J.*) wants the women removed from the Board of Lady Managers of the World's Fair, and men put in their places. But would there then be any Board of *Lady* Managers left?

DOES SOUR STOMACH trouble you? Don't take saleratus or any other alkali, but try this: Drop 20 drops of dilute hydrochloric acid into two-thirds of a glass of sweetened water, and take a swallow as needed.

FEARS ARE EXPRESSED in the *C. B. J.* that the women will get the upper hand and run the whole business at the World's Fair. Don't worry. They'll only run the women's department; and when it comes to fried cakes, crazy quilts, and such things, why, a woman will beat a man at managing that department all hollow.

DOOLITTLE SAYS (*Stockman*). "With me, bees will not half work in sections without a laying queen." Seems so to me; but it's so hard to be positive. I'd like to hear Elwood and Doolittle discuss the question.

FRUIT TREES were never, I think, so full of blossoms in this region as this year. But there is now very little fruit on them. Was it because the bees flew so little? There was some bright weather when tame plums were in bloom, and they have set full of fruit.

THE BEE-KEEPERS' UNION is doing a grand work in the *prevention* of trouble. Does it seem just exactly right that a very few should bear the expense and all have the benefit? There ought to be such a large membership that the annual dues would be nominal.

DECOY HIVES are having some discussion in the *B. B. J.*, some thinking a law should forbid their use. Others claim they have a right to place empty hives for their own bees to enter when they swarm. If a swarm runs away from me, I don't know that I care whether it goes into a neighbor's decoy hive or goes off to the woods.

"FOUL BROOD," John F. Gates says in *American Bee-keeper*, he *knows*, "is caused by whirling the combs of brood in an extractor." The thousands who have extracted honey from brood-combs without ever seeing foul brood might dispute; but Mr. Gates' earnest protest against putting brood in the extractor may be a good thing on other grounds.

HERE'S A CHANCE for a fight with Doolittle. He speaks in *Stockman* as if it were a common thing for colonies to issue ten days or more before the main harvest commences. Not one swarm in a hundred, with me, issues till after the commencement of the main honey harvest. But then, we couldn't get up much of a fight, either, for his main harvest is linden and mine is clover.

SECTIONS LEFT on the hive without being used by the bees for two or three weeks in May, or even in June, seem hardly the worse for it; but if left on in August or September, when no honey is coming in, the bees are loth to use them afterward, because they are varnished with propolis. The same is true of sections that have been partly filled. I wonder if that isn't the reason that some find the bees so slow about finishing up "bait" sections.

THE *British Bee Journal* says an American writer complains that British bee-journals are always writing about the weather. That writer was only envious because he couldn't write about the same thing. The weather is talked about in America just as much as in England, but it won't do to write about. If you say, "The weather is so cold that it is not safe to bring bees out of cellar yet," some one will howl back, "What's the matter with you? Our bees are swarming down here."

NOW LOOK HERE. Don't get clear discouraged. I've known seasons a good deal worse than this—at least, worse than I think this will be. Spring opened up in good shape—plenty bees, plenty flowers, but not a pound per colony stored. On the other hand, I recall one spring like the present (but not so bad, I must say), when, after discouraging losses, I took 12 colonies to an out-apiary, and, with the aid of empty combs, increased to 81, and took 1200 pounds extracted.

PUNIC BEES AT MEDINA.

WHAT THE REV. L. L. LANGSTROTH HAS TO SAY OF THEM.

Having had, for the first time, an opportunity of seeing the so-called Punic bee, in the apiary of Mr. A. I. Root, I will give my impressions of it, formed from what information I could procure from the apiarist, Mr. Spafford, who has the care of Mr. Root's bees.

The single colony in the apiary was far from being strong when put into winter quarters. At the present time, June 4, they are much stronger in bees and brood than any other colony that last season was of about equal strength.

I expected to find them quite dark—much darker, indeed, than the common so-called German brown bee. Nothing, however, in their *color* would have suggested to me the idea that they were not ordinary black bees.* nor did they seem much if any different in size from that bee. Of course, there were some bees in the colony with Italian markings; but these were evidently strangers which had intruded themselves upon the Punics, as all the young bees appeared to have the same markings.

When opened the first time, and carefully looked over, the queen was not found. The bees were much agitated, and acted almost precisely like ordinary black bees—racing backward and forward on the bottom-board, and over the sides of the hive. A second search for the queen was equally unsuccessful. This morning, June 6, the weather being as favorable as it could be, bright, warm, and calm, with the help of Mr. Spafford, and without any assistance from Ernest Root, who wished me to give my own impressions, without any suggestions from him, I carefully examined them again. I gave them sufficient time to fill themselves with honey before the combs were lifted out. The same agitation which I noticed on Saturday, I noticed again—the bees running from one side of the bottom-board to the other, and evidently acting, as nearly as I could judge, much like black bees. We took out the frames and examined them at least three times before we could find the queen. Four years ago, in the apiary of Mr. James Heddon, of Dowagiac, Mich., I saw more than a dozen hives opened, and the queens were found, I should say, in half the time that we spent in finding this one queen. She was noticed near the bottom of a frame, evidently frightened, running around the corners, and seeking in every way to hide herself. In this respect she seemed to me to act like an ordinary black queen. As to the bees, they were not as scary as I have frequently noticed the blacks to be. When a comb was lifted out they did not string out from the bottom of it and drop upon the grass, ready to crawl up my pants, as is so common with the black race.

Now as to the color of the queen. She was not nearly as dark as I expected her to be. I know that I have seen many imported Italian queens darker than she was. On a mere superficial observation one might have declared that we had here nothing but common black bees; but a more thorough examination suggested that they might be a cross of, say, the black with some other race. The color of the queen might again suggest that the Punics were a cross between the black and the Italian races, as the so-called hybrid Swedish clover resembles in many respects the red and white clover, seeding in the first crop like the white, and sending up many stalks of blossoms, like the red, the size and color of the bloom being a beautiful compromise between the two kinds. Now, it is quite supposable that the Punic, so-called, may be a cross between the black and some of the yellow races, and may have been, like the Morgan horse, the starting of a race of bees possessed of uncommon and valuable peculiarities. We know that that Morgan sire so impressed himself upon his progeny that even now, after many generations, there can easily be seen in Morgan horses the type of their great ancestor. The question then arises, How can we decide that this bee is worthy of propagation? It evidently has some of the bad qualities of the black bees, such as its scary nature, and the difficulty of finding the queen. I could not, on so short an observation, decide whether it had the cowardly nature of the black bee; whether in nuclei made of this race we should find them so easily discouraged as to "skedaddle" on the first appearance of adverse circumstances. And, again, it is impossible, from so slight an observation, to know whether, like the black bee, it is a natural-born robber, causing often the most trying difficulties in the management of an apiary. Nor could I tell whether, when an attempt should be made by other bees to rob it, how brave a defense it would make. We all know that the black bee is by nature such a coward that often, when attacked by great forces of its own or other races, like the dog that drops its tail in the fight, and is soon a beaten dog, or the cock that runs, after a few exchanges of blows, it will give up the battle and suffer itself to be robbed of every thing; or even, like the black race, join forces with the robbers, and rob their own hive. If I had only a single warm day which I could spend in observations, I could easily, in ways which I have not time to suggest, decide these points.

Now, as to the conclusion of the whole matter. I would not advise any one to attempt at once to supplant the good races of bees which are in his apiary, with this race; nor would I so condemn it as to say that nearly every enterprising bee-keeper ought not at least give it a fair trial. In a single season, if the season is a favorable one for honey, I believe all the disputed points will be settled, and no one would rejoice more than myself if it should prove, like the Morgan horse, the progeny of an improved and improving race of bees.

My readers will bear in mind that these observations were made upon only a single colony —that this colony might not have been entirely pure, and that I had not any blacks with which to compare it. L. L. LANGSTROTH.

Dayton, O.

[Among the things in our apiary that Mr. Langstroth desired particularly to see was that new race of bees, the Punics; and, as he has already stated, we desired him to form his own opinions and conclusions in regard to them so far as he might be able, during the short time he was to be in Medina, independently of any suggestions from us. It is now June 21; and since the time the article was written our observations only confirm what Mr. L. has already said. In addition we observe that they are very active, and seem to be a little ahead, in honey production, of the average Italians. We also discover that they are good defenders of their home against robbers. Indeed, we have seen them, like the Cyprians, catch the intruders on the wing, "down 'em," and then two or three others would pounce upon them. Again, we observe that they deposit more propolis in the same length of time than any other bees we ever saw. Some of the new frames we gave them ten days ago look as if they had been in use in a hybrid colony for a year or more; and for that reason the Punics may be a terror to exact spacing or to spaced frames. In brood-rearing they are a little bit ahead of the Italians, but not quite equal to the eastern races of bees. They are quick of flight; and when they come in laden with honey they dart in at the entrance like a shot. As Mr. Langstroth says, they are not as quiet on the combs as Italians—a little inclined to be nervous, and run. In fact, by giving them a few whiffs from our Bingham Doctor smoker, we caused them to "boil over" in a regular stampede.

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*I should have been much better pleased if Mr. Root had had a single colony of pure black bees.

Now, after having said all this we ought to state that we have come to the conclusion, since Mr. L. was here, that our Punic queen was not strictly pure; for we find occasionally a one or two yellow-banded bee just emerging from the cell. So it is possible the bees we have may have inherited some of their good qualities from the Italians. It is well known, that even a slight admixture of Italian blood in black bees improves their honey-gathering qualities wonderfully; and may not this be the case with the Punics? Mr. Langstroth uses the term "so-called Punic bee" advisedly. We have just received information almost direct from the exporter himself, in Africa, to the effect that they are nothing more nor less than the Tunisian bees — bees that have for a long time been well known to the apicultural world. We should, therefore, be pleased to have some of our European correspondents, who are in a position to know, tell us something about the general characteristics of the Tunisians.

It may be interesting to some of our readers to know that the article above was dictated to our regular office stenographer; and although it was Mr. Langstroth's first attempt at dictating offhand, the article seems to have lost none of the usual literary excellence so characteristic of Mr. L.'s writings. In fact, it could not be otherwise, for he is a fluent conversationalist, and writes as he speaks.]

MANUM IN THE APIARY AND ON THE FARM.

PAINTING HIVES DIFFERENT COLORS; VALUABLE HINTS AND SUGGESTIONS.

"Hello, Manum! what are you trying to do with that colony of bees?"

"Hello yourself, Leslie; and what are you prowling around here for, with a gun in your hand?" (Leslie worked for me six years at the bee-business.)

"Oh! you see I got tired of the shop, and I suspected you would be here on the farm, either working at the bees or setting out fruit this pleasant day; so I just took my gun along, thinking I might see a woodchuck to shoot at, and at the same time take a little airing."

"I hope, Leslie, you will shoot a large number of woodchucks, for they do me lots of damage in the course of the summer. There!—there is one now over there by that apple-tree, sitting up near his hole. You can rest your gun on this hive, and let him have. Whang! There, sir, you hit him, sure; so there is one less to eat my beans. Oh! you asked what I was doing to that colony. Well, it is one from which I have sold a breeding queen; and, having fed it regularly every day since the queen was removed, for the purpose of getting nice queen-cells, I am now breaking it up and making a nucleus of each comb of brood. There! just see what nice queen-cells these are on this comb. I tell you, it pays to feed liberally when trying to get queen-cells thus early in the season."

"Are you selling many of your breeding queens?"

"Yes; I am having more orders this spring than ever; and, really, I am sorry for it, because, when I remove a queen from a full colony like this it just spoils it for the season, as regards any surplus. The best I can do with such is to make nuclei of them, as I am doing with this one."

"Is this the way you secure so many queen-cells early in the season, as well as after the swarming season?"

"Yes. Usually I do not ship a breeding queen until I have fed that colony a week or ten days, in order to get them in thriving condition; then after the queen is removed I continue feeding regularly until the cells are all capped, when I either break up the colony or remove the cells to other nuclei. If I simply remove the queen-cells I then run in a virgin queen. Then if basswood yields well they will get up in shape to give me a fair amount of surplus; but nothing from clover, and often nothing from basswood. You see, there is no difficulty in getting plenty of nice cells at any time from a strong colony that is well fed."

"How much do you feed such a colony at each feed?"

"I usually feed about one pound of diluted extracted honey or thin sugar syrup every night."

"Manum, who are those two men driving up here?"

"Really, Leslie, I don't know. Let me see. One of them is a Mr. Knowls, of Ferrisburgh; the other is a stranger to me."

"Why! how do you do, Mr. Knowls?"

"Mr. Manum, this is Mr. Joshua Bull, of East Farnham, P. Q., who is a bee-man, and wishes to talk bees with you."

"Mr. Bull, I am pleased to meet you and your friend Mr. Knowls."

"Mr. Manum, I have heard and read so much about you and your bees, your hives, and your methods, that I have come a long way to satisfy my curiosity, and to learn what I can," says Mr. Bull.

"Very well, Mr. Bull; you are welcome, and at liberty to ask all the questions you please."

"I learn that you feed back some of your extracted honey for the purpose of finishing up partly filled sections. Now, how do you do it, and how do you prepare the honey?"

"Yes, I sometimes do feed back; and since I got up my new feeder I find I can do so at a profit. I prepare the honey by adding ⅛ its bulk of *hot* water, by reducing it that much. I find the bees take it much faster than when fed without reducing, and they cap it over much nicer."

"Well, now, that is just what I want to see—that new feeder."

"Here is one right here in this blue hive, where I am feeding a colony for queen-cells."

"Oh my! do see the bees working over those partition boards. Well, I should say it was a good feeder, sure. What would you ask me for one of them to work from? I suppose you do not make them in quantities for sale?"

"No; as yet I do not sell in large lots. I sell now and then only one as a model to work from. I charge $1.00 for these models. Of course, they are a full-sized feeder, such as I use myself, but they can be varied in size to fit any hive or clamp."

"At what time do you put on the sections?"

"That question has been many times answered by Mr. Doolittle and others. I put mine on just as they direct; that is, as soon as I notice that honey is coming in freely. This can be detected by the drawing-out of the comb near the top-bars of the brood-frames. When they begin to whiten it is usually time to put on a *few* sections—just a few—at first. My clamps hold only 16 sections each, and it takes two clamps to cover the hive; but I rarely ever put on more than one at first, covering the other half of the hive with a board; and then when the bees get well at work in the first clamp I put on another, and tier up when necessary."

"Now, if I should decide to make clamps like yours would it be infringing on any one's patent by using the screws?"

"*No, sir!* you would *not*, as I am the first who used the wood screws in clamps or crates, and I have never taken out a patent in my life; hence *everybody* is at liberty to use wood screws."

"Mr. Manum, what is that man doing over there on his knees?"

"He is setting out strawberry-plants."

"Are you in the fruit as well as bee business?"

"Well, I am getting into fruit a little. My land is rightly adapted to fruit; and, being so near the village, I am trying it on a small scale to test the matter. Last winter I read Mr. T. B. Terry's little book on strawberries; and before I had read it half through I had the fruit fever; and by the time I read it through I had it bad; and it so happened that, in a day or two, a fruit agent came along. I called him the doctor; and he, having caught on to me just at fever heat, I took a strong dose by giving him an order for plants enough to set three-fourths of an acre of strawberries and three-fourths acre of raspberries, and a lot of blackberries, blackcaps, cherries, apples, quince, etc.; and now we have them all set except a few hundred strawberries."

"How can you attend to the picking of fruit, and care for bees at the same time?"

"Well, don't you see I can attend to the care of the plants and trees in spring and fall; and wife says she will attend to the picking of the fruit. In that way I think we can make it go pretty well; however, the fruit-business is not wholly new to me, as I have dabbled in it in a small way for a number of years. I also find that raising choice varieties of seeds helps when the honey crop fails. I make it a point to have seed corn, barley, oats, beans, and choice potatoes, to sell every spring at a good price. I have at present over 100 varieties of potatoes, some of which are very fine. The most of them I raised myself from the seed-balls. I have not named my newest ones yet, as I wish to test them another year before offering them for sale."

"Do you name all your new varieties?"

"No, I do not, as some of the parties who buy certain varieties prefer to name the new ones themselves."

IN THE STOREHOUSE.

"Mr. Manum, I see you have a peculiar-looking bean here in this box. What are they?"

"Those are a remarkable bean, and one of the best garden *bush beans* I ever saw. I call them 'Wife's Choice.' They are especially adapted to cook as *shell* beans, being as nice and tender in winter as the cranberry bean is in the summer. They are also very productive. My neighbors, to whom I have given trial messes the past winter, speak so highly of them that I have decided to plant largely of them this season, to supply the demand I shall doubtless have right here in our village."

BACK IN THE APIARY.

"Mr. Manum, do you think that painting hives different colors, as you have yours, has a tendency to help the bees locate their own hives?"

"Yes, I believe it is a help at least, and I have used different-colored paint for that purpose principally."

"What is your opinion regarding the new self-hiving hives?"

"Well, really I know nothing about them, except what I see in the bee-journals. I think possibly that, in time, such a hive may be invented, if not already so. I should be glad of such a hive; but I should be much more pleased with a method by which swarming could be prevented, and yet keep the colony in a normal or natural condition."

"Now, Mr. Manum, I want to ask you one more question. Do you find that bee-keeping pays at the present prices of honey?"

"Really, Mr. Bull, I must say that, of late years, it has not paid *me*. We have had 5 poor seasons in succession. Last year was a little better, inasmuch as the crop just about paid expenses. I find that, by careful management and close economy, I can produce comb honey in a fairly good season for ten cents per pound. In order to do so, however, I find I must do the greater part of the work myself. It won't pay to hire very much help in the apiary at present prices of honey." A. E. Manum.

Bristol, Vt.

PREVENTION OF INCREASE.

HOW DR. C. C. MILLER MANAGES IT.

A correspondent from Indiana comes at me with the following conundrum, asking me to give the answer in Gleanings: "How would you manage to prevent increase in an apiary where the queens' wings were kept clipped, when running for comb honey?"

That's easy. There are various ways. Double up in the fall; double up in the spring; various other ways; but the plan that has succeeded with the least effort on my part is the one I tried last winter. Put your bees in a cellar too cold for them, and then let them stay all winter without any fire. That kept down increase for me; and, having the additional advantage of a remarkably cold, wet spring, I have now less than half I put in the cellar.

Still, there are some things about the plan I don't like, and I'll tell you a way that suited me better than any other I ever tried. The only reason I don't practice it now is because I don't keep my bees all in one apiary, and I don't want to keep some one constantly on the watch for swarms in the out-apiairies. Here's the plan:

When a swarm issues, catch and cage the queen (queens must be clipped), and put her somewhere in the hive, so that the bees can take care of her. The bees, having no queen, will return to their old hive. Sometimes they make trouble by going into another hive, but not often. When it suits your convenience, either right away or any time within five days, take out all the combs and put them into an empty hive, first shaking off about half the bees. Generally I put in half the combs without shaking, and gave three or four hard shakes to each of the other combs. Now put into the old hive at least one comb containing eggs and young brood, being sure you give no queen-cells. Besides this comb of brood, you may give, at your convenience, frames of brood, empty combs, or combs of honey; but if you give empty combs the bees will put honey in them that you want in the sections. If you don't care to put in more than two or three combs all together (that's all I generally put in), put in a dummy, and the bees will not build comb in the vacant space—at least, mine didn't. If you want to raise queen-cells, put in choice brood and you will get fine cells. Now put on the super—you probably had one on before they swarmed—and cover up. On top of the cover set the new hive containing the brood-combs; release the queen in this hive on top, and let them alone until ten days from the time the swarm issued. Then take away the new hive with its contents, and put back in its place the old hive, queen and all, and the work is done. They may swarm again, when the same process will be repeated.

What shall you do with the hive with the few combs that you have taken away? Well, they are yours, and you can do what you please with them. You have a grand chance to start one or two nuclei, for these queenless bees will stay wherever they are put, and their cells will soon hatch. Or you can give back the bees, and use the combs wherever they are wanted.

Perhaps it occurs to you that I have not told you to kill any queen-cells. You needn't pay the slightest attention to the queen-cells that were left with the queen. That colony is weak in bees, and for a few days no honey is brought in, and the bees themselves will destroy every last cell.

It is only fair to say that this is merely a variation of the Doolittle plan, to cage the queen, kill the cells in five or six days, then in five or six days more release the queen after again killing the queen-cells. I followed his plan with satisfaction for some time, and it has the advantage that I never had a colony, so treated, swarm the second time, while my plan has the advantage that I do not have to go over all the combs twice to kill queen-cells.

Possibly you may raise the question, "When the old hive is moved below from above, what becomes of the field-bees on their return to the old spot they have marked above?" Well, I'll tell you. They'll fly around the spot where they think their home ought to be; then a disconsolate cluster will settle on top of the super, and finally a line of march will crawl over the front to the entrance below, and the trouble is over.

SEALED COVERS.

Strong arguments have appeared in favor of sealed covers for winter; but the experience of the Dadants seems to be a settler on the other side. It seems a clear case, that, at least in that instance, sealed covers meant death, and absorbents life. But isn't it possible that other conditions were different? How was the ventilation at the entrance? If the entrance was very small, or closed entirely, it might be the saving of the colony to have a good-sized hole at top. Before I used movable frames, following the advice of Mr. Quinby, I turned my box hives upside down in the cellar; and with the whole bottom of the hive thus open they wintered well. Certainly, with sealed covers there is need of more ventilation below than where the air can escape above.

Then there might be other conditions making a difference. I think that any one who looked at Ernest's colonies with sealed covers, as I did last February, would have been favorably impressed, as they looked so comfortable, bright and lively, and, withal, so small. One thing I noticed: In every case, on that cold day, the thermometer over the cluster, with the glass intervening, showed the same temperature, 45°; and as the bees in the center of the cluster always looked just as wide awake as in summer, it raised the query in my mind whether bees are often, if ever, dormant right in the middle of the cluster. Ordinarily, only the outside bees can be seen. Still, I think I have read of the cluster having been torn open in winter, when all were dormant at the center. If Ernest made observations in that direction, it would be interesting for him to tell us whether he ever found the bees entirely dormant in the center of the cluster; and, if so, what relations seemed to exist between different outside temperatures and the appearance of the center of the cluster.

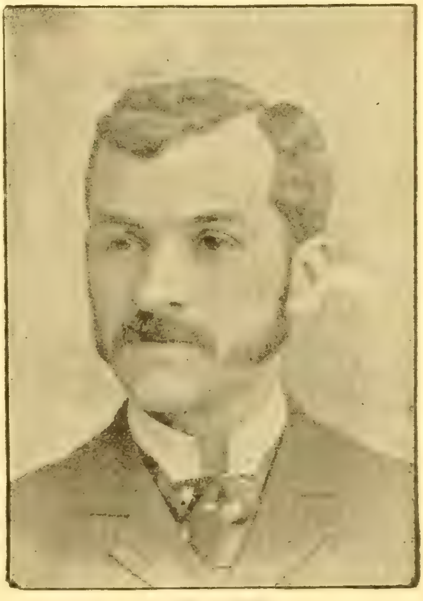
Marengo, Ill. C. C. MILLER.

[No, we have never found them so.]

G. W. YORK.

THE NEW PUBLISHER OF THE BEE JOURNAL.

In accordance with our promise of last issue, we now introduce to you our friend and coworker of the *American Bee Journal*, Mr. G. W. York. We bespeak for him the same liberal patronage that was bestowed on the former proprietor, Thos. G. Newman. The subjoined biographical sketch, with the half-tone, we extract from the *American Bee Journal:*



G. W. YORK.

George Washington York, whose picture is shown herewith, was born on February 21, 1862, in Mount Union (near Alliance), Stark County, Ohio, where his father, John B. York, was completing the course of studies in Mount Union College, which is there.

When "George" was seven years old, the York family (which later consisted of ten members) moved upon a farm of nearly 100 acres, in Randolph, Portage County, O. Here he found ample opportunity to work as well as to grow. Each winter he attended the country school, and at the age of 16 years began teaching in the district schools of surrounding townships, which he continued until 20 years old, excepting the time spent upon the farm during summers, and studying at Mount Union College, from the Commercial Department of which he was graduated in June, 1882, and continued there, for a time, as instructor in penmanship, mathematics, and book-keeping.

In the spring of 1884, after a most successful term of teaching, we met Mr. York while visiting our nephew, Mr. B. Harding, where Mr. Y. had boarded during two of three winters that he had taught the district school of which Mr. Harding was a director, in Kent, O.

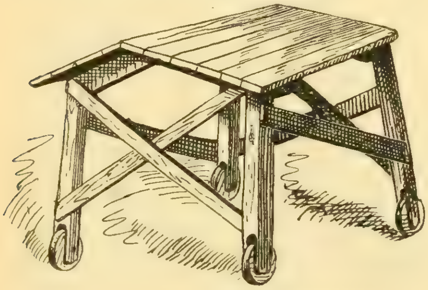
Being much pleased with his attainments and industrious habits, we engaged Mr. York as an assistant in the office of the *American Bee Journal*, and in due time he followed us to this city, and entered upon his labors. Here he learned the printing business, and, step by step, advanced to positions of confidence and responsibility, until, during our late and long-continued indisposition, he has had the entire editorial management of the *Bee Journal*, and that work not only received our approval, but has merited, as well as received, the commendation of many of our readers and patrons.

He is, therefore, not a stranger, but a faithful friend and co-worker, who steps into our shoes, wears our mantle, and we feel sure will be received by all as a successor worthy of much esteem.

SHADING BEE-HIVES.

THE WAY FRIEND DAY (THE TOMATO-MAN) MANAGES IT.

While taking views of the tomato-beds in Crystal Springs, Miss., I looked over friend Day's small apiary, for he is something of a bee-keeper, like many of the rest of us, and I was at once struck with his arrangement for shading his hives. I accordingly turned the Kodak toward it, and here is an engraving showing the result. The engraver forgot, however, to leave the cross-pieces off from one end in order that the machine may be wheeled over any bee-hive.



J. W. DAY'S SHADE FOR BEE-HIVES.

Of course, the machine above may be varied according to the taste of the bee-keeper, or according to the material he may have on hand. The ones I saw were made of pieces of rough boards. As Crystal Springs is in a pine region, very nice lumber can be had at an almost insignificant price. The wheels were cut out of boards. The advantages of this shading arrangement are, that you do not have to put any stones on top of them to keep the wind from blowing them off; neither must it be lifted up and laid down when you open a hive. It can be placed so as to shade the hive only in the middle of the day, leaving the sun to strike it mornings and evenings. The roof is so high above the top of the hive that there is a good circulation of air between the hive-cover and the shade. In Arizona, and other places where the summers are exceedingly hot, we found fine large buildings with a shading roof placed from four to six feet above the ordinary roof. This shading roof extended perhaps ten or twelve feet beyond the roof proper in every direction; but the space between the two was all open, so as to give a constant circulation of air. I am told that this arrangement makes buildings very comfortable that would be hardly endurable without something to keep the sun from the top of the house. Well, you see this hive-shade on wheels works exactly in the same way. When you are tired, all you have to do is to push it away from the hive far enough so you can raise up the hive-cover. Said cover is then laid on the roof of the machine till wanted again. They can be made to shed rain or not, just as you choose. As it will be quite a protection to the hive, I think I would have them shed rain as well as sunshine.

There, friend Day, haven't I given your hive-shade a good puff? If I should wind up by saying $5.00 for an individual right, you might think I was interested; but I am glad to tell you that Mr. Day is not that sort of man. When I spoke of having an engraving made of it, I could hardly persuade him that it was worth the while. By the way, if your section-cases or other surplus arrangements are so made as to be bee-tight on top, you might entirely omit covers to the hives during extremely hot weather. Such a machine would be very unlikely to be disturbed by the wind, unless it should blow with more than ordinary violence.

A. I. R.

GRADING HONEY A LA MILLER.

R. A. BURNETT OFFERS SUGGESTIONS AND CRITICISMS.

Editor Gleanings:—Having read GLEANINGS of June 15th, I find that our persistent and sagacious Dr. Miller has got around more nearly to the classifying and grading of honey, in this last article, than in any former effort; and I want to encourage him to still further perfect a plan by which he can, from his desk, inform the world just what he has in merchantable honey—when the time comes for marketing.

The difficulty with many if not all the plans offered, or papers read or written upon the subject, is, that they confound *classifying* and *grading*. Even the good doctor does; for the third word in his grading of fancy is "white." By striking out the word "white" we have a good description of a fancy article, be it white, brown, yellow, or black. His grading of a No. 1 article is free from the objection noted above, and is very much to my notion, as is also Nos. 2 and 3.

The point aimed at is, to convey an accurate description of what one has to sell to a possible buyer, or to give an intelligent account of the results of the harvest. The doctor's argument in support of his grades may be accepted as covering the views of a majority; hence my suggestion would be: First, *classify* by taking the product of the hive to a table, sorting out the different kinds, which we will classify as white clover, basswood, alsike, sweet clover, sage, alfalfa, buckwheat, goldenrod, Spanish needle, or any other variety that may appear. Thus classified, proceed to grade, selecting, say, from the buckwheat, the fancy combs; straight, well filled, firmly fastened to wood on all four sides, all cells sealed, no propolis, pollen, or travel-stain. No. 1 buckwheat; wood well scraped, etc.; No. 2, etc.; No. 3, etc. Thus having disposed of the buckwheat honey, take some other *class* and grade as before.

Fancy white clover. Combs straight, well filled, etc.

No. 1, white clover, wood well scraped, etc.

No. 2, white clover, three-fourths of the . . . etc.

No. 3, white clover, must weigh, etc.

I can see no objection to using the terms Fancy, No. 1, No. 2, and No. 3; in fact, I prefer them to letters, as A, B, C, D, as the latter are more liable to mislead, and that would defeat the purpose of honey-producers as well as the honest dealer. Comb honey being classified as "Fancy Buckwheat," "Fancy Spanish Needle," "Fancy Basswood," or "No. 1 Buckwheat," etc., the terms light, amber, dark, and mixed would become obsolete, as they now convey only a vague idea of what is really meant. Mixed grades—well, they belong to the back age. Very few now put white and black combs into the same case for marketing, as people want to know what they are buying; hence a mixed case sells at the price usually obtained for the grade in it; that is, the cheap in market at that time, the shipper thus losing the benefit of the higher-priced article mixed therewith.

To me the *classifying* and *grading* of honey is not a difficult matter; and when intelligently presented to the average producer it will be accepted as a guide that will be of much value, as it determines what heretofore has been indefinite. R. A. BURNETT.

161 South Water St., Chicago, Ill., June, 1892.

[Good! we hope more of our commission honey merchants will respond to Dr. Miller's article. Light is surely breaking in.]

◆

TWO SCARABÆIDS.

PROF. COOK DESCRIBES THEM.

The family *Scarabæidæ* consists of large robust beetles, most familiar in the June beetle. They all feed on vegetable matter. One group, like the common "tumble-bug"—more properly tumble-beetle—feeds on decaying matter; the other, on plants. Of these latter are the June beetle, rose chafer, and a host of others. The grubs, or larvæ, feed on roots of plants; the mature insects, on blossoms, leaves, fruit, etc.

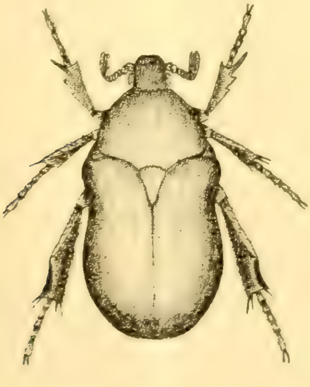


FIG. 1.

One of these (Fig. 1) I have received from Mr. Chas. P. Coffin, Pontotoc, Mississippi. It is a beautiful green beetle, though the elytra, or wing-covers, may be brownish with a greenish reflection. The figure, which is enlarged twice, shows well the form. These beetles are found from the gulf to the great lakes. They delight in sweet juices, and so are seen sipping from flowers, though they may visit flowers more for the pollen than for the nectar; boring into, and sucking the juice from ripe juicy fruit, like the peach; or, again, sipping from the well-filled combs of the hive. Mr. Coffin found the beetle balled at the entrance, much as the bees ball a strange queen, that, perchance, may enter the hive. The beetle was not there to destroy or injure the bees, but simply to rob them. Their attack would not seriously injure the beetle, as its thick crust would be too hard for their stings. I have before heard of this beetle as a honey-thief, from Florida. In the more northern States it is content to depredate on our choice fruits.

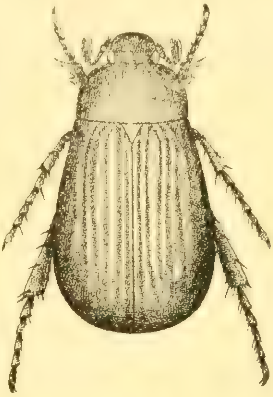


FIG. 2.

From San Jacinto, California, comes another one of these *Scarabæid* beetles (Fig. 2), *Serica fimbriata*. This is rich in its dress of velvety purplish brown, and is well described by the figure, which is magnified three times. It is said to entirely defoliate the plums and prunes, especially the young trees. I would recommend the kerosene emulsion on this beetle. I proved this a remedy for the closely related rose chafer—one of our most dreaded insects—last season, and should hope and expect that it would be a quick and ready destroyer of this plum chafer of the far West. I hope some of our California bee and fruit men may give it a trial, and report the results in GLEANINGS. May not Mr. McDiarmaid, who sent the fine beetles, be the one to do so? I am very glad to receive insects, especially from the South and West. Sent alive in a small pasteboard box, with a little cotton about them, they come in nice shape.

ANOTHER CALIFORNIA HONEY-PLANT.

The honey-plant received from Mrs. J. Hilton, Los Alamos, Cal., is a rosaceous plant. The name is *Horkelia Californica*. Mrs. H. says it "grows on sandy land, and yields nearly if not quite as much honey as the white sage. The honey is thick and waxy, but not quite as white as sage honey." The plant is described in the Government Report on Botany, where it is said to grow abundantly in the Coast Mountains from Los Angeles to San Francisco. The rose family, which includes nearly all of our fruit-trees, is rich in bee-plants, and we are not surprised that this is no exception. The blossom of this plant reminds one of the strawberry and cinquefoil, or Potentilla, in which genus the plants were formerly placed, if I mistake not. It is a good thing to get these unknown friends on record. A. J. COOK.

Agricultural College, Mich., May 31.

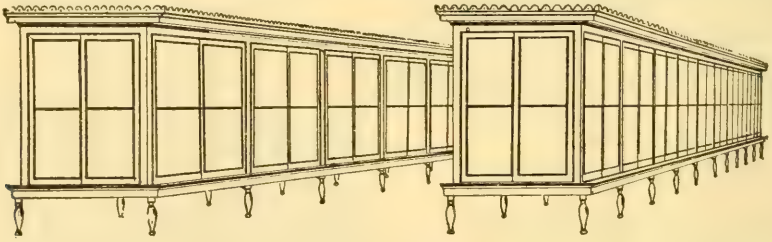
WORLD'S FAIR.

APIARIAN EXHIBIT.

The apiarian exhibit to be made at the World's Fair next year was written about by Dr. Mason, on page 760 of last week's *Bee Journal.* Reference was therein made to something that Mr. W. I. Buchanan, Chief of the Agricultural Department, would publish soon, regarding the bee and honey exhibit. Below we give the special rules, and also an illustration of the proposed glass cases in which the exhibit will be made. We commend what Mr. Buchanan has to say, to the attention of our readers, and trust that they may now begin to prepare for one of the grandest apiarian shows that the world has ever seen. Here are the "Special rules and information governing the exhibit of Bees, Honey, Beeswax, and Bee-appliances:"

1. Exhibits of honey will be classified as follows:

Class 1. Clover and basswood.
Class 2. White sage.
Class 3. Buckwheat.
Class 4. All light honey, other than enumerated in Classes 1 and 2.
Class 5. All dark honey, other than enumerated in Class 3.



The dimensions are as follows: Height of base, 18 inches; width of case, 5 feet; height of case above base (inside measure), 6 feet. Total height, 8 feet. It has sliding doors on both sides.

2. Exhibits of honey produced during 1892, or earlier, must be in place on or before April 20, 1893.

3. Exhibits of honey in Classes 1, 2, and 4, produced during 1893, will be received between July 15 and Aug. 15; and in Classes 3 and 5 between Aug. 15 and Sept. 1, 1893.

4. The following information should accompany each exhibit.

a. Kind of honey.
b. Name of exhibitor.
c. Place where produced.
d. Character of soil in locality where produced.
e. Variety of bee.
f. Name of plant from which honey was produced.
g. Yield per colony.
h. Average price of product at nearest home market.

5. In order to secure a uniform, handsome, and economical installation of honey and beeswax, the Exposition will erect suitable glass cases, of a uniform character, in which such exhibits will be made; the cost of these cases to be borne by the different State Commissions, Bee-keepers' Associations, or by individual exhibitors, in proportion to the number of lineal feet occupied. These cases will become the property of such exhibitors at the close of the Exposition. Below is a very good illustration of the proposed cases.

6. Individual exhibits of comb honey will be limited to 100 pounds, and may be made in any manner the exhibitor may desire, subject to the approval of the Chief of the Department.

7. Individual exhibits of extracted honey must be made in glass, and must not exceed 50 pounds.

8. Individual exhibits of beeswax must not exceed 50 pounds, and should be prepared in such a manner as will add to the attractiveness of the exhibit.

9. Exhibits of primitive and modern appliances used in bee culture, both in this country and abroad, will be received, subject to the approval of the Chief of the Department.

10. Special arrangements will be made by the Chief of the Department for a limited exhibit of bees.

11. Collections of honey-producing plants, suitably mounted and labeled, will be accepted if satisfactory to the Chief of the Department.

12. The right is reserved to add to, amend, or interpret the above rules.

Signed, W. I. BUCHANAN,
Chief of Dept. of Ag.
Approved, GEO. R. DAVIS,
Director General.

—*American Bee Journal,* June 16.

LADIES' CONVERSAZIONE.

NURSING BEES UNPROFITABLE.

VALUE OF THE APIARY AND FIXTURES AFTER THE DECEASE OF THE OWNER.

Mr. Editor:—I have been impressed with the idea of late, that we should not advise a person who has a young family dependent upon him for support to invest all his means in bees and fixtures unless his wife or some other person connected with him works with him and learns how to take care of them. If he should be called away by death it would take a pretty large apiary to bring enough ready money to bury him. I have known of several estates, consisting of bees and fixtures, which brought nothing in comparison to their real value. The reason of this, in a measure, is due to the administrator and heirs not being posted, and advertise only in their county papers; while if in bee-periodicals it might fall under the notice of an apiarist who desires to increase the size of his apiary, or start an out one, and pay something nearer their value than they would bring at auction among those who cared little or nothing for them.

The administrator of an estate called lately to consult me with reference to some bees belonging to it. The owner died in January; it was then June, and they had not been disturbed in the least. I went to see them, out of curiosity, for I had been very much interested in reading how Mrs. Axtell nursed her colonies, and I wanted to see what were her ways in comparison with bees that had not been cared for in the least. I found the colonies located on the east side of a light board fence, on a platform about a foot from the ground. The hives were placed pretty closely together, and the space between them packed with straw, with chaff cushions in the upper story, and well protected from rain. There had been nineteen colonies packed together in the fall, and eleven were living and ten quite strong, and one weak. Their owner was a dear good old soul, and a lover of bees; and I think that, if he had been living, and cleaned their hives, spreading brood, feeding, and put hot bricks to their feet, and fomentations on their heads, there would not be so many to respond to roll-call as now. I speak from experience, for I used to follow the calling of nursing bees in the spring; but I found that the wages were below zero, and I gave it up, believing that it was a better way to keep none over the winter but good strong colonies with plenty of stores, and protect them against severe cold and piercing winds.

As an illustration of this nursing business, I'll give an example: When I found a hive without a tenant this spring I cleaned it out thoroughly, and then put it down cellar to protect it from moths. While doing this, one day a queen with about a dozen bees was discovered. I caged the queen and laid her upon the frames of a strong colony, where she remained for a couple of weeks. In my rounds I discovered a small colony that was queenless. I went into the "good Samaritan" business, confining them to one side of the hive with a division-board, and went for my queen. She had been well treated, was plump and fat, and the bees welcomed her with open arms. I daily fed them with warm syrup made from the best granulated sugar, and all was merry as a marriage-bell. I congratulated myself, like the "country milkmaid," that I should have a good strong colony to roll in the honey from the clover. One day at mess they did not appear; and on opening the hive there was not a bee to be seen, but one comb well filled with eggs. What will my wages be? MRS. L. HARRISON.

Peoria, Ill., June 18.

[You have given us a glimpse of something that is too true. One great reason why bees and fixtures of the apiary go so cheap is because the stuff is odd sized, and made especially for the deceased. Regular-sized supplies have a value, and, in the hands of a bee-keeping friend of the family, ought to be made to yield a fair price.]

WAX FLOWERS.

WAX CROSS, HARP, ETC.

These may be made by fitting delicate white flowers together in the shape of a cross or a harp, pendulous flowers and sprays drooping from the arms of the cross, the box to be lined with jet-black cloth, without luster. Velvet is best.

Another way is to make a cross of seasoned wood, and blocks of different sizes for the base, to represent marble slabs for steps, two or three in number. Paint all pure white, and let them dry, and cover with double white wax—not two sheets of white wax, but sheets of double thickness, such as is used in making pond-lilies. Make an ivy-vine with small white leaves and flowers, or a rose-vine and plant, back of the cross, letting a few sprays fall over the marble steps; but the main vine twine gracefully around, up and over the cross, as fancy dictates. If a rose-vine, use a small leaf-mold and mostly buds.

FOR A BOUQUET.

Tack green leaves in a circle; two or three autumn leaves are pretty put in. Do not use many, as it makes too much yellow. Fill the center with flowers and small leaves. Place the smallest flowers at the top of the bouquet. Do not have them all lie flat against the back, but stand out distinct and loose, so as not to look crowded and stiff. When the bouquet is finished, press and tack on a few brown and green stems at the bottom, the lower end of the stems to stand out distinctly; then finish with a ribbon made of wax, by cutting wax into strips and folding into bows, and stick on, making it look like a ribbon tied round the stems in a bow-knot.

MOTTOES IN WHITE WAX.

Use small leaves and flowers, such as the different kinds of ivy, myrtle, or the lily of the valley. Make letters out of seasoned wood, ¼ inch thick, and paint white, and cover with white wax when well dried. Tack the white letters on to a background of black velvet, or, what is better, put the letters on with a screw, as the wax is so easily broken if tacked on, unless done very gently and the room warmed. If there are several words in the sentence, divide it thus: "Worship the Lord," at the top in a half-circle; "in the," in the center; "Beauty of Holiness" completing the circle at the bottom. Touch the finger in the diamond dust and press it upon each leaf and flower, and upon the letters. Lay the little sprig of leaves and flowers over the letters tastefully, and tack them on firmly with small tacks. To give flowers that soft velvety appearance that is called bloom, when making them dip them in arrowroot powder for white flowers; for pink flowers and fruit, use arrowroot and a trace of carmine well pulverized together.

You can not well use both diamond dust and arrowroot, as they do not look well together. Use diamond dust on leaves, and the arrowroot for bloom on velvety-looking flowers and fruits by touching the finger in the diamond dust and pressing it on when making them; or, when done and ready to hang up, it may be sprinkled over them, as it would fall off if handled much unless pressed into the wax.

SOME CURIOUS INSECTS; WHAT ARE THEY?

A neighbor, calling in to-day, told us of what he saw in 1860, as he went through Laramie, Neb., *en route* for Pike's Peak, about a mile and a half from the old fort and a few rods out of the town of Laramie. A piece of ground about one-fourth mile square (not square, but containing that much ground) was literally honey-combed by an insect that looked and acted, he thought, exactly like our black honey-bees, except that they were going into the ground instead of hives, and had no stings; at least he thought they had no stings, as they were not irritated by the streams of wagons passing into and out of Laramie, right over their entrances, which were simply round holes in the ground. The ground they occupied, he noticed, was a little higher than the surrounding ground. He did not know but it was caused by the bringing-up of the dirt from underneath and dropping it above ground, thus building it up higher. I wonder if any of our Nebraska friends have observed the like; or, did he make it up? He seems like a man of veracity. Were they bees, or were they some other insects? If they were bees, did they store honey in the ground? He said it looked to him, as he passed through them, as if there were bees enough to make a dozen swarms. They were under the horses and the wagons, literally filling the air.

HOW TO GET THE BEES OFF THE WINDOWS.

When bees get into the house and on the windows, I do not want to kill them; and the windows can not well be opened to let them out. I take a quart jar (a two quart will do just as well) and hold it in one hand, with the bottom of the jar toward the window and the mouth toward me, slanting upward so that it is not quite level, and then I can very quickly pick the bees off from the window, catching some by one wing, others by both wings, and still others by the thorax, and letting them loose in the mouth of the jar. As they will all fly toward the light, scarcely one will fly out of the jar. When all are put into the jar I hold it upright and carry it out the door, placing my hand on the cover over the top of the jar. Turn the top toward the sun, or on a level toward the south, and all will fly out. If one does much bee-work in a room, he should have a window where the bees are most apt to congregate fixed in a way that the bees can easily be let out, either by throwing the whole window wide open, or by letting it down at the top and allowing them to run up a wire screen tacked over the window and above it, slanting upward in the shape of an inverted V, as so often spoken of in the journals a few years past. The bees naturally crawl upward and come out at the bee-space left open at the top, but seldom find their way back, if this wire cloth runs up far enough. It is cruel to let them perish on the windows. Before I learned to put them into a glass jar I found it very tedious to get them picked up one by one and carried to the door. Often I would get stung carrying them so far, and it took too much time; but if they are picked off from the windows and put into a jar, the work is done so quickly that they get no chance to sting.

FEEDING IN SPRING.

Very weak colonies should be fed but little, early in the spring. A tablespoonful or two is better than more. If too much is fed it daubs the bees, and some will die from being swamped in it, others from overwork in taking it up. Just a little, to stimulate them to do their best, is enough. We all know that bees live the longest when they are most quiet; and in the spring, if fed too liberally, they will die off one way and another before the brood hatches fast enough to take their places.

HEAVY WINTER AND SPRING LOSSES.

Out of 225 colonies last fall, we have but 75 hives with bees in, and not more than 35 will be strong enough to gather the spring white-clover honey. We bought 9 colonies; 7 of these are in fair condition, making but 42 fair colonies; and 37 can barely save their queens. Some of these colonies may die yet, as they are dying nearly every day. MRS. L. C. AXTELL.

Roseville, Ill., May 26.

CHRONICLE OF THE VERMONT BEE-KEEPERS' REUNION PICNIC.

BOOK I., CHAPTER 1.

And it came to pass in the latter days of the fifth month, in the third year of the reign of V. V., whose surname is Blackmer, a president of great bee fame, who resideth in a town called Orwell, which bordereth on the shores of Champlain Lake, in Vermont, that, behold, messages were sent unto many dwellers round about—bee-keeping men and women—that they should gather themselves together at his house upon a certain day of the the sixth month, in A. D. 1892, and delight themselves with a reunion picnic.

Now, having, the year before, likewise assembled themselves together, they all cried out in one accord, "Let us go as we are bidden!"

Now, when the time was at hand, verily they did go from the north and from the south, and from the east and from the west, bringing with them bread and meat, and baskets full of many good things; and, behold, some journeyed miles, and the day was part spent when they did arrive; in sooth, the dinner and all things were about ready, and soon the company were invited to sit down to the small tables that had been distributed in their midst, that they might be comfortable; and they did so, and were glad, for the much journeying had caused them to be sore and ahungered; and they did all eat, and were filled; and of the fragments that were left there were several baskets full; and they that did eat were about thirty, including men, women, and children.

Now, it came to pass that, on that day, much interest was taken in the things pertaining to the honey-house, which is nigh unto, and a convenient distance from, the dwelling-house. Of the late and modern improvements in apicultural implements there seemeth no end. Exceeding great preparations for abundant surplus honey had been made by V. V., whose surname is Blackmer, and also his son, the diligent, who abideth with him. Not only do they pursue bee culture, but beautiful flowers, and multitudes of savory garden vegetables do they also produce. Much counsel took we together all the day long.

Now, it came to pass, that, before the day was far spent, a sojourner in Brandon came unto us, bearing with him a camera to "catch our shadows ere the substance fadeth," and verily we did all appear before his presence with smiling, squinting faces.

Now, straightway after these things, piano music was discoursed by a fair damsel of the house of Blackmer. And it came to pass, before the evening drew nigh, that the assembly dispersed, and of a truth took with them memories of a day which profiteth something. A.

THE NEW D. SECTION-CASE.

ITS ADVANTAGES FOR THE SMALL BEE-KEEPER AND BOX-HIVE MAN.

After using the D. section-case I am ready to say it is just what the bee-keepers on a small scale need. It places the honey in a marketable shape, so that it will sell, even to the poorest purchaser that may be found. Many people can command money enough to buy one pound that could not buy more; so a section will supply them. For illustration, a D. case will supply one; three or four will furnish another; and so on till any order can be filled. The cases can be taken out of the super, the bottoms put on, and put away and kept ready for market at any time. Those who hold to the old box hive, and will not exchange, can use them. Three just fill the cap of an old box hive. Many persons who use the old box hive, and consider all movable-frame hives "patented swindles," can be induced to risk 30 cents for three cases with sections to try; and when we get them to try once they will always "stick." I consider the D. section-case the best invention yet made for getting the "old fogies" out of the old box hive. A very important point in favor of the D. case is, that the exact bee-space is always retained between the brood-frames and sections, even though the top-bars do sag a little. They can be carried on the streets and sold in any quantity that may be desired. The honey is pretty, clean, and handy; and bee-keepers who have twenty or thirty colonies in the D. case will find a ready market for their honey. If sale is not found where you live, the cases may be crated and shipped to some commission merchant or some poor widow lady who has boys selling newspapers, who would be more than glad of the opportunity of handling your honey, and would handle it at a reasonable per cent—less than the commission man, and at the same time you would be helping the widow and orphan. W. H. HUGHS.

Bowls, Ga., May 30.

[Mr. Hughs has mentioned most of the points of merit in the D. section-case. It was not designed for the large bee-keeper, but for those who have only moderate-sized apiaries, such as, for instance, farmers. There are, perhaps, as many box hives in use in the country as the movable frame, and our effort was to select something that would suit this class of bee-keepers. That we were successful is shown by letters of appreciation that are coming in like the above.]

GLEANINGS' ARTIST.

A BEE-KEEPER, MUSICIAN, AND ARTIST.

A great many of our readers have admired the humorous style of the Rambler etchings. While the Rambler, or John H. Martin, of Riverside, Cal., suggests, by a rough drawing, the funny incidents of his travel and observation, it is R. V. Murray, of Cleveland, O., who remodels the drawings, giving them character and expression. As Mr. Murray is a bee-keeper and an artist, and is already familiar to the readers of GLEANINGS, we thought it might be interesting to give you his picture, and therefore solicited from him notes from which we might prepare a biographical sketch. These notes contain interesting incidents of prominent persons and things; and they are so modest in their tone that we submit them direct, just as they came from the hand of the writer, R. V. Murray himself.

From family and other records, and from what I have been told, I am inclined to believe that I first saw the light of this world on Feb. 8, 1844, in a part of that renowned and classic town of Andover called Ballard Vale, on the banks of the Shawsheen River, and about 20 miles northeast of the Hub of the Universe, Boston. My father was a Highlander, a remnant of clan Murray, and my mother a Lowlander. They had been married but a month or two, and that a time of preparation for their journey to this great and glorious country, America, to which they came by slow-sailing vessel; and after being driven from their course several times, and undergoing extreme hardships, they finally landed at Boston. Thus all the family were given to them in this country which both of them loved so well. I am one of a family of six. Their life, with but few exceptions and at short intervals, has been spent at this same town and in the same house in which we were born, and in which some of the family still live.

Nothing special need be said of my early life. It had its ups and downs, and, to my eyes at that time, apparently more downs than ups. The first ten years of life were spent in a vague and misty way, and we went through the general range of boyhood realities and dreams. About this time I was broken to harness, and was given to understand that my contributions, however little, were needed in the family; so I commenced work in a woolen-mill, which was one of the principal industries of the town at this time. As years went on, and the perceptive and rational faculties began to evolve and shape themselves, I could not help seeing the slavery of the mass of employes of eastern mills, though those views have been modified some in later years—the seldom varying round of life which they led, the few and spasmodic pleasures that came like gleams of brightness now and then, and the depressions which followed—the greed of corporations, the realization of life and its environments, and the hopes and desires to better the conditions. I, like thousands of others, have passed along this road, and on the way have absorbed both good and evil, true and false, which have entered into my make-up, and have left their impressions.

Like the rest of our family, especially on the Morrison (or mother) side, I early possessed an intense love of music, and from my father's direction a natural love and taste for the beautiful in nature, from whence I trace, in combination with the music, the early desire and tendencies to ultimate the same by drawing. I was always extremely fond of reading, and I can see that the mental material gathered by that means was by far the best educator I ever had, for my schooldays actually were very meager. Books were rare, but good use was made of them. I was early taught a profound and holy reverence for the Lord and all his works, and was led to early engage, to the best of what ability I possessed, in his work in whatever station or place I should be in; and I believe that this helped me wonderfully in my early endeavors to draw the reed and rushes along the Shawsheen River—to sketch the noble hills and valleys that lay around me—the endeavor to express ideas by form, the study of the different forms on every hand, from cloud to play of light and shadow on various objects ever before me, and the realizing how bungling my work in comparison. The drawing of the common weeds by the roadside—all these and myriads more have been the means of opening the eye of the blind, and enables one to work from within out. Some great thinker has said, that drawing should go with if not before writing, and I agree heartily with the sentiment; for with nature without one, and the Lord within, the tendency can not but be upward.

At about the age of 19 I took my first lessons from a teacher in drawing, who located for a while in our village—a Mr. Bryant—a painter and lover of art, and those three terms of evening lessons I to-day look back upon as one of the brightest spots in my life. But the dark cloud of the Rebellion interrupted my studies, and shot the life out of one of the most lovable of teachers; for, true to his moral teachings, he was willing to die for the principles he loved. His teachings were always accompanied with moral lessons. This *man*, for he was a true man, and one who followed closely after his Maker, and has left an impression upon my life coupled with his noble actions, was always in the endeavor to show the why and wherefore of every thing—the cause and effect, whether applied to drawing or other things.

During the war I was engaged by the Spencer Rifle Co., of Boston, and while there made good use of my time evenings, and what spare time I could command, by studying under various teachers and schools. From there I went to Amesbury, Mass., with the intention of learning photography; but my employer, Mr. Clarkson, soon went out of business, and my career in that direction came to a sudden close. In my early days our family lived in this same town of Amesbury, and I felt somewhat at home, so I went into the mills there and stayed a year or so. It was at this time, or just before the photographing business was given up, that I made the acquaintance of that lovable and renowned Quaker poet, John G. Whittier, and I have had many friendly talks and visits with him; have met him in his rambles along the Powow River and the meadows of the Merrimac.

During the war, my brother, James R. Murray, whose bent had been in the direction of a musical career, issued his first important song, Daisy Deane, the words of which were written by a cousin, a quartermaster of the 19th Regiment. After the close of the war, James became associated with the music house of Root & Cady, of Chicago, where he filled various positions. Under his brotherly care I was encouraged to design for sheet-music title-pages and covers of books, which led me more particularly to study composition, ornament, and design, as well as lettering. In 1867 or '68 I left home to take up that branch of business, and to engrave the same on metal, at first under a Mr. Chandler, then under Woodbury, whose place I afterward filled. It was here that I first met Dr. C. C. Miller, or, as he was best known to us, under the *nom de plume* of P. Benson, Sr. (which the Sr. stands for Singer). A series of his letters were running in the *Song Messenger*, and afterward issued in book form. I met him many times there, and also, I think, at a place where we all loved to go, the home of Prof. Orlando Blackman, now teacher of music in the schools of Chicago. It was also the home of Rev. Dr. Hibbard, a minister of the New Jerusalem Church, or, as commonly, but erroneously, called Swedenborgians. Many musical people of note were frequenters at this home, among them our esteemed and lamented P. P. Bliss and wife. Bliss had a good deal of the comic in him, as well as the doctor. Bliss has written several comic songs; but his humor, like the doctor's, requires some thinking to see rightly. All true genuine humor requires thought, in a true sense, to look below the surface and see what is intended to be taught—not vulgarity, as some imagine humor to consist in. I can remember the expressions of regret that Dr. Geo. F. Root felt that P. Benson could not be retained as a feature of the great music house, and which was shared in by others.

R. V. MURRAY.

While at Chicago the firm were kind enough to influence themselves, and I was in due form introduced and admitted to the Chicago Academy of Art and Design, and I was allowed half a day a week to study there, as an extra help from what the evening classes could give me. There I met and came under the inflence of artists and teachers such as Dehil, P. F. Reede, Donaldson, Wilson, and others. Then came that great event, and what appeared as a terrible evil (which turned out a blessing, as most appearances do), the great fire of Oct. 9, 1871, and blotted out academy, music-house, and a thousand things which entered into my life, and at one time barely escaping with even that; with clothes torn and burnt, with body bleeding, I, with multitudes, made our way to the lake, and in many dangers made our way to places of safety. I was in a dazed and helpless condition. But, let the details of those events pass. Suffice it to say, that at that time I realized more than ever that great truth, and the blessed hope that came with it, that "the Lord's providence is exerted for our good every atom of time."

The music-plates of the sheet-music department were saved in an underground vault, and were afterward purchased by S. Brainard's Sons, of Cleveland; and this circumstance, and my intimate knowledge of the catalogue, etc., brought me to Cleveland (have not seen Chicago since). The music-books went to John Church & Co., of Cincinnati, where my brother now is. After serving the Brainards about a year I became associated with the business of wood engraving as artist and designer, and have been in that up to date.

In looking back I can see now what the Chicago fire was all about (that is, so far as regards myself), which was, that I might meet and wed one of God's loving helpmeets, and to give me work to do which I should not otherwise have had. Then there was the church work and Sunday-school, which I am just old enough to attend; then the Medina Roots were, with many others, looking for me, for I had to become attached to a Root of some kind; then you know the Rambler was gradually edging this way, and he had to be "done up," though he doesn't stay so, but persists in unraveling himself. R. V. MURRAY.

Cleveland, O., June 1.

[R. V. Murray is the senior member of the firm of Murray & Heiss, the engravers who, we presume, have done three-fourths of all the engraving that has been done for the bee-keepers of the United States. When we talk about hives, brood-frames, bee-spaces, queens, drones, and workers, they know just what we mean. For instance, in writing instructions we tell them to put the bee-space above the frames or sections, and they know exactly what we mean. Mr. Murray, however, is a bee-keeper, or, rather, owns a few colonies in or near the city limits of Cleveland. He has had the bee-fever, got over it, and experienced the exquisite pain of bee-stings, hived swarms, and has done every thing, in fact, except secure a big crop of honey. In fact, in a city like Cleveland it is a hard matter for bees to find very much natural forage, and no doubt Mr. Murray has done well under the circumstances, even to make the bees work for nothing and board themselves. Many a bee-keeper counts himself lucky, in these days of bad seasons, if he can do even that.

From the reading of the notes, one might possibly gather the idea that Mr. Murray knows something about music. Although he gives you no direct hint to that effect, he is a very fine musician, and is especially skilled in playing the guitar.]

COLORADO, IOWA, AND WISCONSIN.

SOME INTERESTING FACTS AND STATISTICS FROM C. W. DAYTON; VALUE OF PROTECTION; GOOD LOCALITIES FOR APIARIES IN COLORADO VERY FEW, ETC.

Having assisted in the manipulation in a Colorado apiary for a little more than a month, and as we are rapidly approaching the opening of the honey harvest and having more or less colonies scattered here and there about the apiary, which are so weak as to trouble us to get them up to the proper strength to take the best advantage of said harvest, I can begin to look back over the records of the colonies and understand how the springing of bees in Colorado compares with the same season in Iowa or Wisconsin.

The following table gives the number of combs containing brood in each of 25 colonies on the different dates. It is remembered that the amount of honey that is obtained is directly dependent upon the amount of brood the colonies have about 30 days before the harvest.

No. of colony on register.	No. fr'm's of br'd		Kind of hive for winter.
	Mar. 5.	May 27.	
180	3	4	Single-wall.
181	4	4	Single-wall.
182	2	6	Chaff.
183	3	5	Single-wall.
184	2	3	Chaff.
185	3	6	Chaff.
186	3	4	Chaff.
187	2	5	Single-wall.
188	1	3	Single-wall.
189	3	4	Chaff.
190	3	4	Single-wall.
191	Dead.	0	Single-wall.
192	3	5	Chaff.
193	0	2	Single-wall.
194	2	3	Single-wall.
195	3	4	Chaff.
196	2	5	Chaff.
197	3	4	Single-wall.
198	2	4	Single-wall.
199	2	3	Single-wall.
200	Dead.	0	Chaff.
201	2	4	Chaff.
202	2	6	Single-wall.
203	2	4	Single-wall.
204	3	5	Chaff.

This table shows an average number for the 11 chaff hives as 4 combs, and the single-wall hives 3½, which makes a point in favor of protection, the live colonies averaging a little more than four combs of brood each.

My old rule for Iowa, and a rule that has proved good for several years past, is, to get from 6 to 7 combs of brood in each colony by May 20 to 25. Only one season in the last ten have I failed to average 6½ combs of brood on May 25, and that was pronounced a very late spring. The honey harvest is looked for on June 15 or 20, the same date as in Iowa or Wisconsin, on the 43d parallel; and those which have 6 combs of brood on May 25 in Iowa are able to take good advantage of the harvest at the start. If a colony had more than that, I reduced them by helping up weaker colonies. If a colony had but 5 combs of brood they were slow 1½ frames, which, in the amount of honey obtained, I estimate at from 15 to 30 lbs.

What the outcome in Colorado will be I could not guess; but the bees are from one to two combs of brood below what they should be, and I probably have one of the best if not *the* best apiary in the State to judge from.

Basswood and clover often yield at the rate of 10 or 15 lbs. per colony a day; but the harvest, being of short duration, together with several cloudy days, prevents our obtaining a large yield. One year there were barely 7 days from spring until fall when the bees laid by a surplus; still, in that short space of time my colonies stored nearly 70 lbs. of extracted honey each. Every colony was ready and waiting for the blossoms to open.

Here, with this probably lengthy honey-flow, the yield each day must be light or we should hear of some astonishing reports from this State. In Colorado the honey nearly all comes from alfalfa, a plant very much resembling clover, but larger and stouter in growth, and it is said to yield honey for 50 or 60 days. With so long a harvest, even weak colonies should be able to build up to the necessary strength, and do good work for a month or more.

White clover and basswood in Iowa or Wisconsin seldom yield honey over 20 days.

The most noticeable feature of the above table of colonies is the large amount of brood in March, and but little more late in May. The cause of this is, that there are many sunshiny days along through the winter, and that, when the sun shines, it is very warm; and when there are clouds, and during the nights, it is very cold. These warm days (or, I may truthfully say, hot days) thoroughly arouse the bees as in mid-summer, and they begin breeding in February for all they are worth. The cold checks the brood-rearing, and the warmth again stimulates it. When there comes a week of warm prosperous weather, and then suddenly comes a cold snap, its effect can be as plainly seen in the brood-combs as on the tomato-plants in the garden—not always in brood killed, but in the appearance and manner in which it is placed in the combs. For instance: On April 23 to 26 there were three very warm days. Previous to those days it had been quite cold. The brood in the combs was in patches from 4 to 6 inches in diameter, and was of all ages—eggs, larvæ, capped and hatching bees, all mixed together. That is the way the brood is when the bees must cluster compactly to keep it warm. When the three warm days came, the bees began to get a little new pollen, and the cluster spread out through all the combs, and the queen went to depositing eggs at a great rate until, at the close of the warm days, there was a strip of eggs from 2 to 3 inches wide around every patch of old brood. Then the weather turned a little colder—not cold enough to destroy the eggs, but cold enough to prevent the queen from making a circle of eggs any larger. The eggs hatched, and the larvæ were capped and maintained as a belt of brood of one age, and nearly every cell occupied. The weather continued cold and rainy for 15 or 20 days more, and for 20 days this belt of brood measured the size of the brood-space. It is very convenient, sometimes, to help a weak colony by giving it a comb from a stronger colony that has many hatching bees. In the case of such brood-rearing, if the comb was secured before this belt of brood had hatched, it was all right; but if this belt of brood had hatched before it was given to the weak colony it would be the worst thing that could be done, as there were scarcely a dozen bees a day hatching afterward for 21 days, or until this belt brought out another quota of bees. One moderately warm day would not send the queen over the belt; but three or four *hot* days did it. It was about the 21st of May when these last hot days came.

It is a question for consideration, If the queen, during the three hot days in April, will lay an amount of eggs more than equal to all the brood there was in the hive, will she not, with all the days hot, or at a temperature of 85 to 90 degrees, lay that much every three days? This would amount to 6 or 7 such belts of brood where we now have only one and a part of another. We look for great results with the one. What might we look for with 6 or 7? If this could be accomplished with artificial heat, would it not be somewhat like gardening under glass? Enough of theory, and to return to the subject.

Unlike Iowa and Wisconsin, the old bees which go into winter quarters in the fall are entirely gone in May if not in April, and the colonies then consist of fewer and newly reared bees which may live to rear brood and assist in the honey harvest. These young bees are more tenacious of life, and weak colonies dwindle out very slowly compared with the dwindling of colonies of old bees in Iowa. The cold nights and cloudy days (which are always cold) continue so late in the spring that these weakened colonies can scarcely build up before the alfalfa comes into bloom. This constant brood-rearing takes a large amount of honey—from 50 to 60 pounds to last from one honey harvest until the next; and by all this labor and consumption of stores the colonies through February, March, and April become a trifle weaker, showing that it takes the life of a little more than one old bee, besides the honey, to produce a young bee; and that, if the old bees can be made to live until settled warm weather, without rearing brood, it is the most economical plan by about 25 lbs. of honey.

In April the colonies are so small that they must be doubled twice to fill the hive with bees. This is easier done with young bees than old, I have learned.

In Iowa, when the colonies are set out of the cellar, or when warm weather enough to start brood-rearing comes, the hives are crowded with old bees sufficient in number to care for large quantities of brood, and from 3 to 6 combs are filled with brood at the start; and ere the old bees die off there will be more than enough young bees hatched out to take their places.

Good locations for apiaries in Colorado are very few. Four-fifths of the State would not support bees at all.

Alfalfa is practically the only honey-yielder, though there is a small amount of sweet clover. All crops depend upon irrigation with the snow water which comes from the mountains, and which quantity can supply only a limited amount of land situated near by; and it is almost entirely along these irrigating ditches in certain favored spots where bees thrive—just about like the location for basswood in Iowa; but it does not compare with the basswood of Wisconsin or the white clover of any of those States.

This apiary produced 9 tons last season—one-half comb, and is equipped with Simplicity hives and frames; Root mills, which turn the wax into foundation of excellent quality; extractors, sections, smokers, supers, foundation-fasteners, and section-folders, from the Home of the Honey-bees; together with 100 new Heddon hives contribute to the pleasure and profit of the apiarist.

One of the great drawbacks to the business is the long distance from market, as the honey must be nearly all shipped to the eastern cities.

Greeley, Col., June 1. C. W. Dayton.

PUNIC (OR TUNISIAN) BEES.

FRANK BENTON GIVES HIS OPINION OF THEM AFTER TRYING THEM.

Inclosed you will find a clipping from the *American Farmer*, Washington, D. C. Evidently, such well-known authority as Frank Benton knows what he is talking about; and the sooner bee-keepers in general know the facts in the case, the better it will be for them.

Rochester, O., May 19. M. W. Shepherd.

Many bee-keepers will want to buy queens of some one of the better races this spring to improve their stock. At the present time the choice lies practically between the Italians and Carniolans. The former have been known for over 30 years in this country, and are very generally recognized as superior to the common brown bees. The Carniolans have grown in favor very rapidly since their introduction, less than 10 years ago, largely on account of their uniting, to the same general good qualities of the Italians, far greater gentleness, enabling timid bee-keepers, ladies, and young people to manage an apiary with much greater safety and pleasure than formerly; also, they winter the best of any race, and their combs rival in whiteness those built by any other race.

Another race of bees has recently been advertised under the name of "Punic" bees, the queens having been offered at from $1.50 to $50 each. The former price is for unfertilized queens; $5 is asked for fertilized queens, $10 if purely mated, $40 if selected, and $50 for such as are said to have been imported from the native land of this wonderful new race, which, according to the claims of the advertiser, unites all the virtues that one could possibly imagine as belonging to bees, with none of their faults. As the writer happens to have been the first to call general attention to this race of bees, under the far more appropriate name of Tunisian bees (Tunis being the native land of the race), and as he has had considerable experience with them in Tunis, and also in several other countries, he may be allowed to express an opinion as to their merits and demerits. The former are soon told, for the Tunisians (or Punics) are industrious and prolific, somewhat more so than any race of bees coming from Europe, but rather less so than the eastern Mediterranean races (Cyprians, Syrians, and Palestines). But their faults make a list! They are small and very black; are spiteful stingers, as vindictive as the worst race known; bite in addition to stinging; are great propolizers, daubing hives, sections, and combs lavishly with "bee-glue;" they swarm as much as do Carniolans, and winter as poorly as do Palestines. Most people will think the genuine imported queens are a trifle extravagant at $50 each, especially those who remember that, in 1885 and 1886, just such queens were offered at from $4 to $10 each, direct from Tunis, northern Africa. Millionaires who keep bees will, of course, buy "Punic" queens at $50 each for all of their hives, although they wouldn't look at Tunisians a few years since at $4 to $10. But the rest of us will plod on with bees whose queens cost us $1 to $5 each, and that are chiefly noted for giving us honey, money, and pleasure in handling them. Frank Benton.

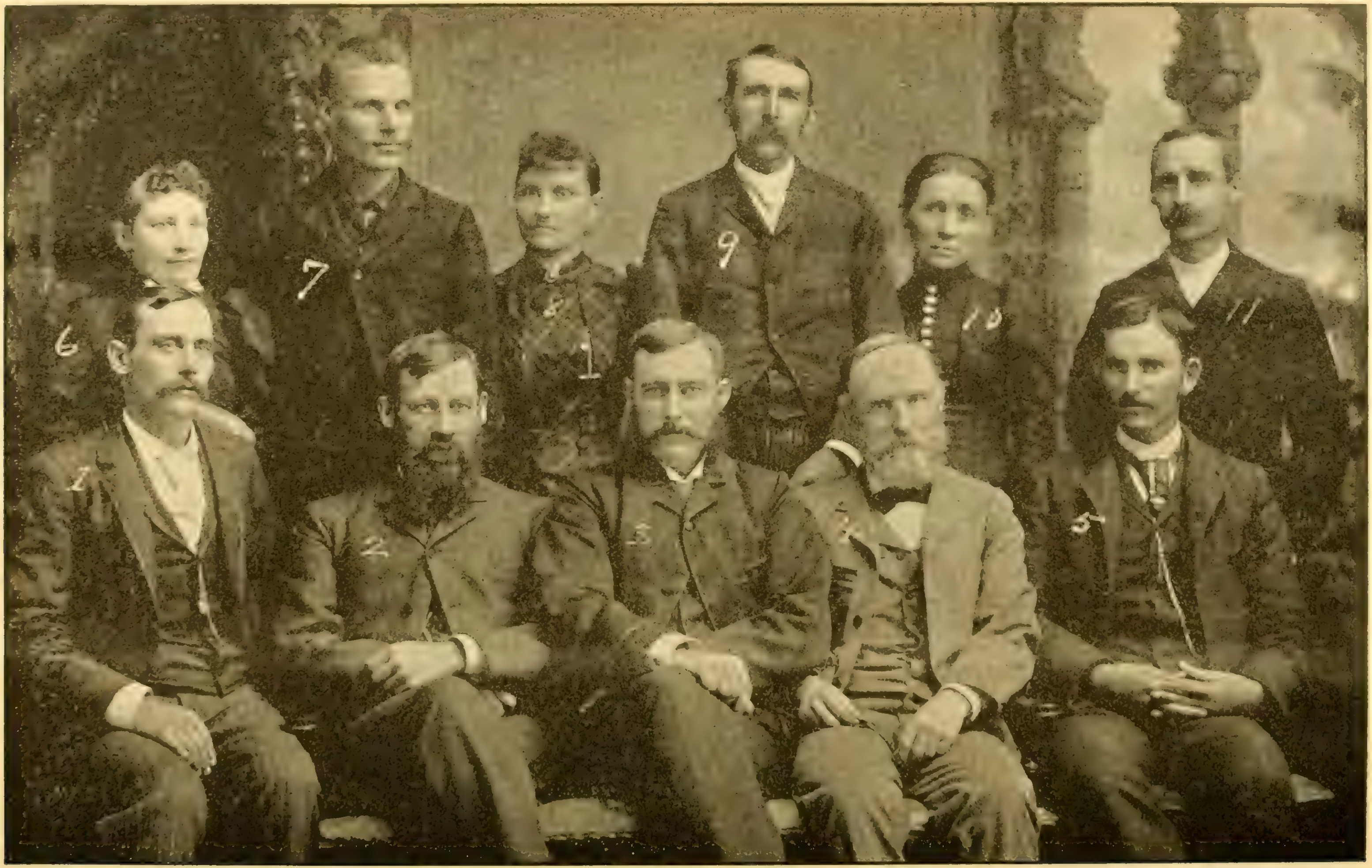
CALIFORNIA.

REPRESENTATIVES OF THE EASTERN AND WESTERN BEE-KEEPERS SITTING TOGETHER.

We enjoyed the visit of Mr. and Mrs. Root very much indeed, and only regret their stay could not have been prolonged. At the late reunion of the C. S. B. K. A. a photograph was taken of our late guests and the officers of the C. S. B. K. A. The photographer informed me a few days ago he had forwarded one to Mr. Root's address at Medina, so I will give you the key to it.

Mr. McIntyre, president (No. 3), you will recognize; also J. H. Martin, secretary (No. 9). At the left of Mr. A. I. (No. 4) is L. T. Rowley (No. 5), vice-president. At the right of Prof. Cook (No. 2) is T. H. Hunt, vice-president (No. 1). At the left of Mrs. Root (No. 10) is the treasurer, the writer (No. 11). Mrs. Hunt's wife (No. 6) stands at his back; the other lady in the picture is her friend (No. 8); and the tall gentleman between the two is a Mr. Young (No. 7), a member of the Association.

Our honored guests are, I trust, distinguishable; and while the photo is not as good as we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REPRESENTATIVES OF THE EASTERN AND WESTERN BEE-KEEPERS.

could wish, yet the individuals connected will ever tend to make us prize it highly.

Geo. W. Brodbeck.

Los Angeles, Cal., Feb. 1.

[Friend B., you may think we have been a long time finding a place for the above picture in Gleanings; but I suppose our readers will be as glad to see it now as almost any time. You didn't tell us that No. 9 was "Rambler;" in fact, by looking closely you will see a small portion of the striped breeches that have so many times delighted our eyes. As I look over the picture while adding my notes, it brings back so vividly that pleasant month in Los Angeles that it almost seems as if we were back there. I don't suppose you will feel so much interested in No. 10 as I do; but she looks in the picture so exactly as she did when I found her in San Francisco that it makes my heart beat quicker when I look at the picture. And No. 11! Dear friend B., it almost makes me feel bad to think how much you and your good wife did for us when we were there; and it almost seems as if we didn't quite say "thank you" for it all. And how I do like to see friends Cook and McIntyre sitting there together like a couple of brothers! It makes me think of the time when I told Prof. Cook that he *must* get acquainted with Dr. Miller; and then I told Dr. Miller that he *must* get acquainted with Prof. Cook. It was really one of my fond projects to get the two to know each other. Well, it was just so with Cook and McIntyre; and even if they did talk bees and entomology and other things so much that they almost forgot I was around, it didn't trouble me a bit. I haven't so much to say about the others, for I didn't get to know them quite so well as I did the others; but I got acquainted enough to feel toward them like a lot of kind brothers and sisters, which they really were. Say! don't you think that's a nice crowd to be in, any way? Some such thought must have been on my mind, and that's what made me look so good-natured and happy.]

A. I. R.

JOKES IN GLEANINGS.

AN "OUTSIDER" THINKS THEY OUGHT TO BE LABELED.

Editor Gleanings:—I hope you will pardon the intrusion, for I am not a subscriber to your journal, albeit a "constant reader" through the courtesy of one who is, and with whom I exchange. We can not afford to each subscribe to *all* the bee-journals we wish to read, so we are neighborly.

What I wish to say is, that I should think you would shut down on those people who are eternally reminding the Dadants that they are Frenchmen—as if they were to blame. I dare say they are as good *United States* as any of their traducers. Dr. Miller, who takes every opportunity to speak of those "miserable Frenchmen over at Hamilton," would certainly think the wit rather far fetched if he were reminded of his likeness to St. Patrick. Hambaugh would not care to have the honored name he bears traced to Hamburger—Limburger—bah! cheese it! We like a joke as well as any one, but don't mix them up with your argument so much, else we may not be able to tell which *is* argument or which is intended for joke.

I don't know Dadant from a last year's bird's-nest—never had even a circular from him, though I *am* a bee-keeper; but if I wanted to deal with him or any of the crowd—Miller, Doolittle, Hambaugh, *et omnes* (is that correct? twenty-five years since I tried Latin afore), I'd just deal with them regardless of "previous condition of servitude."

I suppose I ought to apologize for writing, even; if so, I'll accept it. This is "not necessarily for publication, but as evidence of good faith."

C. H. Clayton.

Lang, Cal., April 10.

[Upon receiving the above we studied upon it for some time to know whether the writer was joking or really meant what he said. As it was a case wherein Dr. Miller was particularly involved, we sent it to him, asking him what his opinion was in regard to it. In reply he wrote, "Some things in it look plainly in the direction of its all being a joke, and there surely is some joking about it; but the last sentence in the second paragraph seems in earnest, in which he condemns the fault in which he himself sins so grievously." We then wrote Mr. Clayton himself, explaining that Dr. Miller, Mr. Dadant, and Mr. Hambaugh were old-time friends, and were in the habit of bantering each other at conventions and through the bee-journals. We further added, that, if he meant it for a joke, we would give it insertion, and that we *thought* our readers would so understand it—at least if we appended a footnote to that effect. Mr. Clayton replied in the same facetious style; and as it is somewhat sparkling in its humor, we present the same to our readers.]

Editor Gleanings:

There! just what I expected! The whole staff of Gleanings turned down. The proof of the pudding is in the eating. If they don't know a joke, how in the world can you expect us "outsiders" to recognize one—unless "'tis English, you know"? Of course, I could see that Dr. M. *et al.* were joking, else Taylor would not keep bees to eke out a living; he would have too much to do defending libel suits, etc. My mother always said I was a *leetle* smarter than common children, hence I knew they were joking all the time. But, seriously, all jokes should be labeled in three colors, like Mark Twain's picture, "This is a horse." Then there could be no mistake about it—it would be known like the woman's turkey—by "walk, talk, and conversation." How would this do for a label on Hambaugh's joke? "Monsieur, by gar, you're a Frenchman; vous understandes? This is the first of April, and *this* is a joke." This, coupled with a footnote by the editor, explaining that it was intended as a joke, would make it *real spicy*. I *hate* to have to explain a joke. Don't you? Why can't we "outsiders" be let into the secret, so we can laugh with Dr. M. and Ernest? Misery loves company. I am, I suppose, what you call an outsider. I am not a subscriber to Gleanings. I read it through kindness of a more fortunate neighbor; but I hope by and by, as soon as I can afford it, to get on the inside, and *pay* for Gleanings. Times have been mighty "corky" for a year or two, and the "kids" are lightning on shoe-leather; so, per force, I must, for a time at least, stay outside the fence, and continue to swap journals with my neighbor; but whatever betide, I shall not fail to take an interest in every thing pertaining to bee culture.

Lang, Cal., April 30. C. H. Clayton.

[While the correspondence above was apparently intended for the private ear of the editor, we thought it might be interesting to the readers in general. It will explain, perhaps, a little better to some of the "outsiders" how some of the principal contributors do sometimes banter each other—not because they have any ill will or spite, but because they are such *good* friends they can poke fun at each other's expense, and not "get mad." If Dr. Miller *et al.* are jokers, then our California correspondent "is another" (joker).]

RAMBLE NO. 62.

MATILIJA CANYON.

At the keep-sweet bee-keepers' convention in Los Angeles I made the acquaintance of Mr. B. A. Rapp, also of Ventura. The little city of Ventura is built along the shore of the Pacific; and close to it, for a backing, are several steep and barren-looking hills. Sometimes these hillsides are covered with residences, for here we get a grand view of the Pacific Ocean, and the healthful salt-water breezes come up to you without let or hindrance. The residence having the highest elevation is occupied by Mr. B. A. Rapp and his brother, J. J. I climbed the hill in the evening, and could hear the steady roar of the ocean-waves as they dashed in upon the shore. All night this monotonous movement of the waters sounded much like the steady conflict of waters at Niagara.

HOT SPRINGS

THE RAMBLER ON THE WAR-PATH; AFTER THE EDITOR OF GLEANINGS WHILE IN CALIFORNIA.

B. A. and the Rambler occupied the same bed harmoniously together, and felt very fraternal, as we had both been upon the golden shore less than a year, and were both still in the order of "tenderfoot." It was quite late when we closed our eyes in slumber, and also late when we opened them in the morning. A grand view was, however, waiting to impress itself upon our opening eyes. While yet in the bed we could see far out upon the Pacific Ocean. The long lazy swells came rolling in; and upon their approach to shore their crests would sharpen up and suddenly break into white foam all along the line, and lash far up on the pebbly beach. The shoreline makes a curve here, and the foaming breakers were visible for a long distance; and for several minutes we admired a grand picture of nature we shall never forget.

During the short time Mr. B. A. Rapp had been in Ventura he had come into possession of two apiaries; first by purchase, then by increase, which speaks well for his energy and close application to business. We enjoyed a very pleasant ride, some ten miles out, to them, and found them apparently in excellent condition for winter. We found all of the usual concomitants of a California apiary — hives, stones, tank, extracting-hut, and sun wax-extractor.

This locality differed somewhat from other places I had visited, from the number of live-oak trees. There were many of them, and they afforded a plentiful shade, and gave the landscape a more pleasing appearance. Shade, however, is not so essential near the coast as it is in the interior. The sea-breeze makes a very even temperature here, while in the interior the mercury often rises to 115 degrees in the shade. Still, owing to the dryness of the atmosphere there are but few cases of sunstroke.

J. J. Rapp's apiary is 20 miles from his residence, and well up in the Matilija Canyon, into which the editor of GLEANINGS has twice journeyed; and from his recent experience in getting his feet cleansed from a heavy coating of Medina garden soil, he may be expected again when said pedal extremities get into the same condition. But beware, Mr. Editor; this makes several times the path of my travels has been crossed, and patience has ceased to exert a virtuous influence. I have the promise of a shotgun for defense, and now would say, in the immortal words of the poet: "Beware the pine-tree's withered branch; beware the fearful avalanche; beware of my shotgun."

Mr. Rapp was going into the canyon to regulate his apiary for the rainy season; and, desiring an expert helper, we concluded the following very satisfactory bargain: I was to ride 20 miles on the nigh side of a road-cart; open all the gates, etc., that obstructed our way; eat what Mr. R. had a mind to give me; sleep where he told me, and do as he did in the apia-

THE RAMBLER AND FRIEND EN ROUTE TO AN OUT-APIARY IN CALIFORNIA.

ry. He was to care for the horse, and shoo away any bears, girls, or grass widows that might be prowling around.

We jogged along for miles in a very numerous dust which arose in clouds all around us. As soon as we entered the canyon, however, we left the disagreeable behind us. The Ventura River takes its rise away up somewhere in these mountain fastnesses, and comes whirling down with many a crook and turn to encounter. When we enter the canyon we circle around a point of jagged rocks that almost overhang our heads. For over five miles we follow the ever-shifting scenes; much of the way we follow the winding way of the river-bed, and cross it 14 times. At the little hamlet of Matilija is a hot sulphur-spring, where the editor bathed so gloriously; but there is a much better, hotter, more solvent, and more sulphurous spring a couple of miles further up the canyon. This spring is so hot the hand can not be held in it. I suppose this extra high temperature is owing to its proximity to the Devil's Slide. This historic slide is a very jagged seam of rock, set at an acute angle, and hundreds of feet down the side of the mountain. It is evident that, if Old Nick ever did slide down that rough place, the seat of his pants must have suffered exceedingly. Several times in going up the canyon we approached a blank wall of rock which seemed to bar our further progress; but a way of escape and progress was opened by a short turn to the right or the left. Near such a place we made a sharp turn and came suddenly upon the busy city of bees, located upon a little level of land with prodigious mountains all around it. In addition to hives, stones, etc., there is a little cabin, and here Mr. Rapp, his wife, baby, and a helper, stay through the busy season. This apiary numbers 375 colonies, and it is a piece of property that has changed hands several times. A previous owner had trouble from bears trying to work the apiary; but a rifle settled the question of proprietorship. Mr. R. had not been to the apiary for several weeks. His work now was to move back several colonies from the river-bank, where there was danger of a wash-out. Then the hives were closed up to small entrances; the covers were evenly adjusted, and heavy stones were placed on the covers. A few swarms were united, and the apiary would not be visited again for three or four months. Owing to the road following the bed of the river there are several weeks during a season of heavy rains when the upper portion of the canyon is impassable; and people residing far up have to lay in an extra supply of provisions or move out. The move-out plan is usually adopted.

On the afternoon of the second day our work with the bees was finished. Mr. R. had an idea of dividing his apiary and starting another three miles further up; and he proposed that we settle our dinners by riding that distance further into the canyon. The road was exceedingly well adapted to the purpose, and it required much skill with the reins to avoid the stones. Mr. R. was an adept at missing them on *his* side of the cart, but was sure to bounce the Rambler over every big boulder that was on *his* side. Every time I came down with an exclamation he would say:

"We'll get there soon; no harm done."

"Oh, no!" says I; "no harm done."

We forded the river again, and his side of the cart got a bounce; and as we went up the bank at an angle of 45 degrees, says I, "We're getting there; no harm done."

"Oh, no!" says he; "no harm done."

We agreed just beautifully. Right here on the bank of the river is the residence of an old Spaniard, and the last house in the canyon, and the end of the road for wagons. A trail can be followed still farther up. The horse was secur-

J. J. RAPP'S BLACK-BEAR APIARY, MATILIJA CANYON, CALIFORNIA.

ed, and we proceeded on foot. A suitable place was found for locating an apiary. The pasturage was certainly unlimited, but it looked like a dreary spot to a man just from the East; but I suppose, ere this will be read, Mr. R. will have an apiary in full blast in there.

The old Spaniard had a few cattle on his ranch, and had also made himself famous a few months previous by lassoing a bear that was prowling around his premises.

I found, during the cabin experience, that Mr. R. was an excellent cook. He could make coffee, take beef out of a can, and slice bread just as handily as a woman. During our stay Mr. R. gave me the choice of sleeping in a straddling sort of cot or on the floor. I chose the floor, and was pleased to see him mount the cot and pile blankets on top of his corporosity while he had nothing but canvas under him. The night being quite cool, and being attacked from that quarter, my friend's slumbers were much agitated with dreams.

On the morning of the third day we broke camp and started for civilization. My friend felt it his duty to bid good-by to all the lone widows, who seemed to be abundant in the canyon.

There are several apiaries in the canyon. Mrs. Lyon and daughter have an apiary, and a very pretty home completely embowered in shade and fruit trees; and in the season of flowers the rose lends its charm to beautify the surroundings. These ladies are also heroines in their exploits with wild animals. A mountain-lion came down upon their fold one night, and, having no man around to call upon, they went out and shot the lion themselves. Such is the grit possessed by the women of Matilija Canyon. A little further down, Mr. Lewis has a large apiary, and runs his extractor by weight power. The machine was not visible. It was behind locked doors, and there was nobody at home. At another point we see, away across the river, the Hellow apiary, and the owner means that everybody passing that way shall know it, for the words are painted on the end of his cabin in letters over a foot long, which can be read a mile away. I have no doubt about the proprietor's sociability, for his cheery, warm-hearted greeting is always there if he is not.

I parted with my friend Rapp on the streets of Ventura, and shall ever hold in grateful remembrance the many kind bee-keepers who reside in Ventura, that beautiful city fanned by the breezes of old Pacific, and lulled to repose by the music of her dashing waves. That evening, in order to make railroad connections, I left Ventura a little more abruptly than I intended to, and again the rattle and turmoil of a train was the music that surrounded the

RAMBLER.

[Now, friend R., you have gone and trodden on and run over a good many things that are almost sacred to my memory. It is not so, that I carried Medina soil all the way to the hot springs of Matilija. Mrs. Root would have never married me if I had done that way. That Matilija Canyon is one of the things of nature that makes my heart swell when I think of it. Your description of it is grand, especially where you come on to me, fixed up like a wild Indian on the war-path. Your description of the way in which bee-keepers go up there and get shut in by the high waters is a real truth; and it seems to me a little sad to think that, notwithstanding the immense yields of honey that this wilderness affords, most people sooner or later abandon it. The picture of riding in a cart down the canyon is wonderfully lifelike; and the old inhabitants have a provoking way of looking so cool and indifferent, exactly like the man in the picture who sits by your side, that it used to vex me. The pony, too, will walk right straight through heaps of rocks half a big as himself, with the utmost indifference; then the occupants of the vehicle won't even make a remark or lose the smile on their faces, even when they are shaken about in a way that must dislodge all their false teeth — if they have any. I found out, after my last visit, that there was an apiary and a hotter spring up there. Why! I thought I was clear to the borders of civilization. By the way, I wonder whether anybody could keep climbing for ever, further on into those wild canyons. Yes, no doubt Ventura is a nice place to live in; and what lots of good people are to be found there! Now, in regard to your remark that it is the Devil's Slide that makes the spring water so hot. Why, friend R., have you forgotten that we gave a most beautiful picture of the place where his Satanic Majesty is reputed to have slidden down? You will find it on p. 27, Jan. 1st issue, '89.] A. I. R.

QUESTIONS ANSWERED.

FACTS FROM OBSERVATION, BY DOOLITTLE.

A correspondent writes: "Will you please answer the following questions through GLEANINGS? 1. What is the significance of finding in the morning, say from twenty to fifty little round caps of wax near the entrances of the hives?"

Answer.—So far as my observation goes, the finding of such caps signifies that drones are hatching out; for if any one will take the time to examine, he will find that the drone, in hatching from the cell, bites the cover of the cell entirely off by a smooth cut, while the workers leave only fragments of the cappings of their cell-coverings in hatching. The queen cuts off the capping of her cell the same as does the drone, except, as a rule, a little piece on one side is left, which often acts like the hinge to a door, the door often closing after the queen has gone out. Where no such hinge is left, then the caps to the queen-cells are tumbled out of the hive the same as are the drone cappings, but in no case would there probably be as many caps from queen-cells seen as our correspondent mentions. If the little door thus closes as spoken of above, the bees often make it fast, so that the inexperienced bee-keeper is often deceived into thinking that the queen has not hatched. It often happens, as soon as the queen has emerged from her cell, that a worker goes into the cell to partake of the royal jelly left in the cell, after which the cell-cover flies back, or is pushed back by the ever traveling bees, and the worker is a prisoner, which has caused many to think that the inmate of the cell was not a queen but a worker; hence they call their colony queenless, and send off for a queen, only to have her destroyed when they try to introduce her. It is well to understand all of these little things in bee culture. Some suppose that the round caps spoken of by the correspondent indicate the uncapping of cells of honey, either by robbers or preparatory to the carrying of the honey from the outside to the center of the hive; but I think this is a mistake, as the cappings of the honey-cells are gnawed off in little fragments, and not in the round form spoken of.

"2. In gathering honey, do bees visit different kinds of flowers on one trip, or gather honey from one kind of flowers only?"

Answer.—From the fact that bees never bring in pollen of different colors in their pollen-baskets at the same time, the idea has obtained that they visit only the same blossoms, or blossoms of the same color, which idea in the main is correct, or very nearly so. Regarding this point I will say that, in gathering pollen, I never saw a bee change from one kind of flower to another, except on the clovers. I have seen bees gathering pollen from white, red, and alsike clover at the same time; but those clovers gave the same-colored pollen. When we come to honey, I have seen bees fly from a gooseberry-bush to a currant-bush, and from clover to raspberry-bloom, and *vice versa.* I have also seen them go from the red variety of raspberry to the black, where the different kinds of bushes were planted side by side, or in alternate rows; still, all that does not prove that bees gather honey promiscuously, for I do not believe they do. It will be observed that all of the above, except "from clover to raspberry," were of the same species of plants, or nearly so. Teasel and basswood bloom at the same time; but never, in all of my watching, did I ever see a bee go from teasel to basswood or from basswood to teasel.

"3. A swarm came out one day, clustered, and was hived. In the evening they swarmed out and went back into the old hive, leaving a small bunch of bees in the hive; these remained six days, when they swarmed out. I found the queen with them. What made the most of the bees leave their queen and go back?"

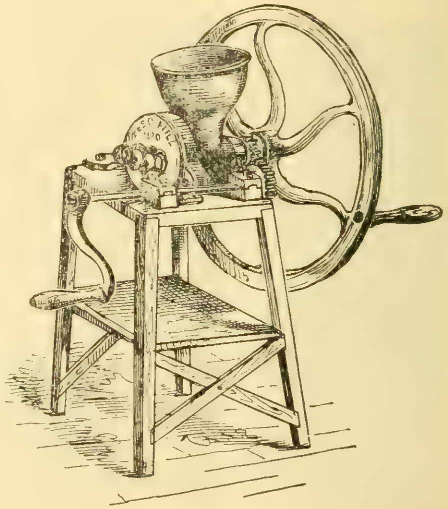
Answer.—The above is one of the most perplexing things which occasionally happen in the swarming season in a large apiary. The general cause is, that a few strange bees from another swarm or elsewhere go in with the swarm, and for this reason the queen is balled for safe keeping, or for some other purpose; just what, I never knew. Where the queen of a newly hived swarm is thus balled, the bees seem to think that they have lost their queen, and so return to the old hive, all except a few which are near the ball of bees. If they are stopped from going home they will try to go into other hives. I used to get a large proportion of them killed in this way, by their trying to go into other hives, or else I had to let them go back, until I learned how to keep them from going back. At first I hunted out the queen by smoking the ball of bees until they released her, when she was caged and placed between the combs, or hung down from the top-bars of the frames when no combs were used. In about a half of these cases this satisfied them, while at other times they would ball the cage, so it did no good. I now secure the queen as before; but instead of using a common round cage I make a large flat one to reach clear across the frames. Into this I put the queen and lay it on top of the frames, when the bees can get at her through the wire cloth between every frame in the hive, which satisfies them. The next morning I let her loose and remove the cage, when all goes well. G. M. DOOLITTLE.

Borodino, N. Y., June 14.

MAKING YOUR OWN FLOUR.

AN IMPROVEMENT SUGGESTED ON THE WILSON MILL.

Perhaps some of the readers of GLEANINGS have felt the need, as I have, of a family grist-mill. If they have, and have made any attempt to find one, they know that little attention has been given to the manufacture of such machines. I am confident that a practical hand-mill can be made, costing, perhaps, twelve or fifteen dollars, about the size and weight of a farm corn-sheller, with gearing and balance-wheel similar to the same, that will grind wheat fine enough so that the entire product, minus, perhaps, the coarsest bran, may be made into light bread; and which will not require an excessive amount of time or labor to operate. If such a mill is manufactured, I can not find it. The nearest thing that I can find to it that I have discovered is Wilson Bros'. No. 0 mill. This mill, costing about five dollars, is sent out without legs, and is designed to be bolted on a bench and operated by a handle on the rim of the balance-wheel. If any of the friends have one, they know that the time and labor necessary to grind any thing fine is so great that the mill, as made by the manufacturers, is practically limited to coarse corn meal and cracked wheat. They also know that the number of turns of the crank required to do the work wearies the operator more than the resistance of the mill, even if the resistance were somewhat increased. Having purchased one of these machines to produce graham flour fine enough for bread, and feeling that it was not a success in this respect, as it stood, I set about increasing its speed at the expense of power. The accompanying illustration will show quite clearly the manner in which this was done. It is not a difficult matter to find two cog-wheels, related to each other as one to three or four, the smaller of which must fit the $1\frac{1}{16}$-inch shaft of the mill. A piece of old shafting, fitted (by a blacksmith) with a crank, and fastened into the larger cog-wheel, and the whole connected with the smaller cog and fastened to the bench with wooden boxing (if iron boxing can not be found), completes the machine. One turn of the crank gives four of the mill, and the increased speed causes the balance-wheel to assist in the operation. Those who own these mills will be well paid for the money and time required to gear them as above; and how they do crack corn for the chickens! But, best of all, we now transfer wheat from the bin to the gem-pans and bread-pans quite frequently, and with comparatively little time and labor. If every one knew what sweet nice bread this fresh new flour makes, there would be a notable falling-off in the use of white flour, and the feed-mill manufacturers would be lying awake nights devising a perfect family grist-mill. Millers, also, instead of offering you, as they do, nothing but graham flour a year old, or that made of musty or grown wheat, would be taking some pains to furnish something nice.



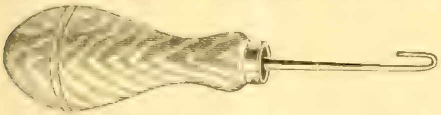
Green Spring, O., May 23. N. E. LOVELAND.

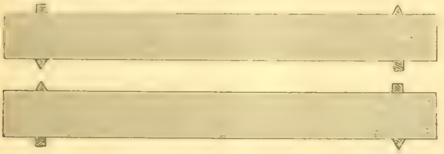
HEADS OF GRAIN

FROM DIFFERENT FIELDS.

A TOOL FOR WIRING FRAMES.

If those who are wiring frames by the Keeney plan, and have no small pliers, will make a hook of stiff wire, just large enough to slip over the nails, and fit it into a suitable handle, I am sure they will be pleased, as the hooks can be formed rapidly and easily.





HOFFMAN FRAMES PUT TOGETHER WRONG.

The above diagram shows how Hoffman frames may be put up with the V's on opposite sides, and yet be wrong when placed in the hive.

Reeds Corners, N. Y. JAMES ROAT.

[Yes, the Hoffman frames can be nailed together wrong; but to prevent this, our catalogue, and also the printed matter accompanying the frames in the flat, warn against the mistake, and tell how to put the frames together so that the V edge will always came next to a square edge. The sharp edge should always point *toward* you, and next to the *left* thumb, when the frame is suspended by both forefingers.]

DEATH OF AN OLD BEE-KEEPER.

Will you kindly announce the death, on May 26th, at 4 A. M., of our esteemed friend Mr. Oluf Olson, of this place? Mr. Olson, at the time of his death, was about 40 years of age. He was born in Sweden, but came to America some 22 years ago. After visiting and stopping a while in Memphis, St. Louis, and Cincinnati, he settled in Springfield, O. From there he came to Florida, and has been in this State about 11 years, though one winter was spent in Cuba assisting Mr. O. O. Poppleton in caring for an apiary there. He was an apiarist by occupation; was well skilled in the different branches of the business, and has made some fine records here. Yet he was an exceptionally modest man, and talked but little of his successes. His last sickness was brought on by overwork in his line of business; but, though failing for some weeks, his sufferings were not particularly severe, nor had he apparently any fear of death.

Hawks Park, Fla., June 6. W. S. HART.

SEALED COVERS AND ABSORBENTS IN THE CELLAR.

I see on page 367 you want testimony on wintering bees in cellar with tight bottoms and sealed covers on. Last fall I put my bees in the cellar just the same as they were in the yard. To make sure most of them were tight, I set one tier of hives with a wide board running lengthwise of them; then another tier of hives on top. This weight on top would make the lower ones very tight, and they were new hives. Now, every one of those colonies came out in No. 1 shape; and I like it so well that all my bees will go in in that way this fall. I winter under my house, and I had more light in the cellar this winter than ever before. I find it made no difference. I set my bees facing the wall, lower tier about a foot from the ground. I find the most essential point is to have plenty of bees and stores in the hives. I have also found it does not pay to bother with small weak colonies that are short of stores—better be united and fed up, as one good swarm is worth a dozen poor ones.

In conclusion I will say there will be thousands of pounds of honey this season for all if it will only stop raining long enough for the bees to get out. The harvest will come with a rush when it does come. W. D. SOPER.

Jackson, Mich., May 19.

ARTIFICIAL HONEY.

Well merited was the fine of $100 recently imposed upon a man in New Hampshire, convicted of selling artificial honey. Now "trot out" the man who "manufactures artificial combs and fills them with artificial honey," if he can be found. He is talked about a great deal; the editor of the *A. B. J.* has diligently sought him, but his location or a sample of his artificial comb honey the vigilant editor has not yet been able to find. If a Chicago man can make artificial comb honey, a Chicago editor is smart enough to find him out.

It can't be that Mr. Newman is after the $1000 that has been offered for one pound of artificial comb honey. No, he is after the scalp of the fellow that keeps up the ceaseless reiteration of the "Wiley pleasantry." Mr. N. applies a stronger term usually. The story may have started as a "pleasantry," but we can't any longer call it a pleasantry. It is neither pleasant nor true, and is too serious a "chestnut" to be denominated any thing but a "lie." If it were true, does anybody believe that the sum of one thousand dollars would remain unclaimed for years?—*Wisconsin Farmer.*

HONEY IN WHITEWOOD-BLOSSOMS.

Yes, friend Root (for I feel that I can call you friend since reading the A B C), that whitewood-tree you climbed, if you had taken some of those large buds just as they were opening you would have found the honey ready made that you could have gathered as well as the bees. When a boy I have climbed the old poplar-tree to get the honey from its buds. You are right in saying that the bud will yield sometimes a teaspoonful of honey. B. L. MADDEN.

Sago, O., June 14.

A SHORT TALK FROM FATHER LANGSTROTH.

What splendid weather! but, "Oh, how uncomfortably hot!" cry out so many. Well, if we had real comfortable weather, as we usually have in summer weather in Great Britain, the could never ripen a bushel of Indian corn.

Dayton, Ohio, June 16. L. L. LANGSTROTH.

PROF. WEBSTER, OF THE OHIO EXPERIMENT STATION, AND HIS BAD ADVICE.

There is an article in the *Ohio Farmer* of June 4, page 427, entitled "Bees and Spraying," by Prof. F. M. Webster, of the Ohio Experiment Station, that I think needs some correcting, and it should be done in the same paper it was originally published in. Prof. Webster takes exceptions to an article published in GLEANINGS, entitled "Spraying Fruit-trees while in Bloom," and tries to make out that spraying while trees are in bloom will not injure bees. There is too much such stuff sent out by our scientific (?) men, and I think it should be answered by those best posted, in the best and ablest manner possible. J. S. BARB.

Oakfield, Trumbull Co., O., June 10.

[Prof. Cook is the one to answer the above.]

NOTES OF TRAVEL

FROM A. I. ROOT.

In California we have people of all nationalities, and people from almost every quarter of the United States. My good friend Woodberry, of whom I have frequently spoken, is a Downeaster. In fact, his former home was in the State of Maine. Well, after being with him for several days I became so accustomed to his little peculiarities of speech that I thought I could tell whether a man came from Maine or not by talking with him for a few minutes—that is, providing the people in the State of Maine all talked pretty much alike. Near the hot springs of San Jacinto I found some very pleasant people by the name of Dustin. After I had been there an hour or two I spoke something like this:

J. H. DUSTIN'S APIARY NEAR SAN JACINTO, CAL.

"Mr. Dustin, you are a Downeaster?" He nodded his head, and then I went on: "And is it not true that you came from the State of Maine?" He smiled as he assented. I did not know then but he might be an acquaintance of friend Woodberry; but I found he was not. Some time afterward in Tempe, Arizona, I made the same remark to a third bee-keeper; and I was right that time. He also was a Downeaster, and came from the State of Maine. Well, I hope the people who live away out in that corner of Uncle Sam's domain are all as nice as the three I have mentioned. Friend Dustin has not been very long a bee-keeper. His good wife was in very poor health, and nothing gave her so much relief as the hot springs of San Jacinto; therefore, like a good and dutiful husband, he located a little home upon the granite gravel, part way up the mountain-side. As he must have something to do, he got some books and papers, and commenced studying up bee culture. Like all other bee-keepers he is a fine mechanic, after the fashion of Yankees generally. As timber is scarce and high he decided to make his honey-house of adobe. The material lay all around right under his feet—every thing he needed, in fact, except water, and this he drew up in barrels. His building was not quite all adobe, however, for adobe houses are made of sun-dried brick, while this structure was all one solid brick. He made a sort of frame, or trough, without bottom, and into this he poured his mud. Then the frame was lifted up until the mud was dry enough to stand alone, and then he lifted the frame again, and so on. Every thing in his apiary was in apple-pie order—even the shade-boards to keep off the hot sun; and his apiary looked so pretty, that, with his assistance, I climbed upon his mud honey-house and snapped my Kodak at it. Here is the result.

A little way from the apiary was a novel watering-place for bees. A can of water stood on the edge of a platform perhaps a yard square. The faucet of the can was turned so the water dropped about as fast as sap runs from a maple-tree on a good sugar day. Underneath the faucet was a tray of tin. This tray is filled up with little blocks of granite picked up where it is thickly strewn all over the ground. See cut on next page.

At the time I took the view, the granite pebbles were thickly covered with bees sipping the water. In fact, the pebbles were covered so thickly that the faucet had to be turned till the water almost ran a stream. I told friend D. that he was rather babying his bees; for by going down to the hot spring at the foot of the mountain they could get water in great abundance. But instead of making the little chaps fly up hill with it he drew it up in a barrel on a stoneboat, with a *horse*. And this brings us to the problem as to which is cheaper—to let your bees bring water up hill on the wing, or draw it up with a horse and stoneboat. Friend D., Yankeelike, concludes that, if the bees draw it, it must consume muscular energy; and muscular energy means the consumption of honey; therefore when the horse draws the water up for them to drink he makes (or saves) honey by using his immense strength in going *afoot.* Oh! I forgot to say that the apparatus was extemporized from a gasoline-oil can, as you can see in the picture. Now, in order that you may become better acquainted with our good friend Dustin I will let you see a letter from him:

Friend Root:—I feel that I owe you a letter of thanks, if nothing more, for the kindness you manifested in sending me a year's complimentary subscription to GLEANINGS. I saw by the last GLEANINGS that you arrived home on the 5th. We can imagine your joy on reaching home again. "Home again from a foreign shore." We hope and trust that you have received great benefit from your trip to California. We wish you could have stayed until about this time, or a little later. This State has a very different aspect now from what it had when you were here. Then, almost every thing looked dry and barren; now, all is green. Even the brown, dried-up mountains are covered with green foliage and flowers of every color of the rainbow. Grain is waving in the wind, and alfalfa is about ready to cut.

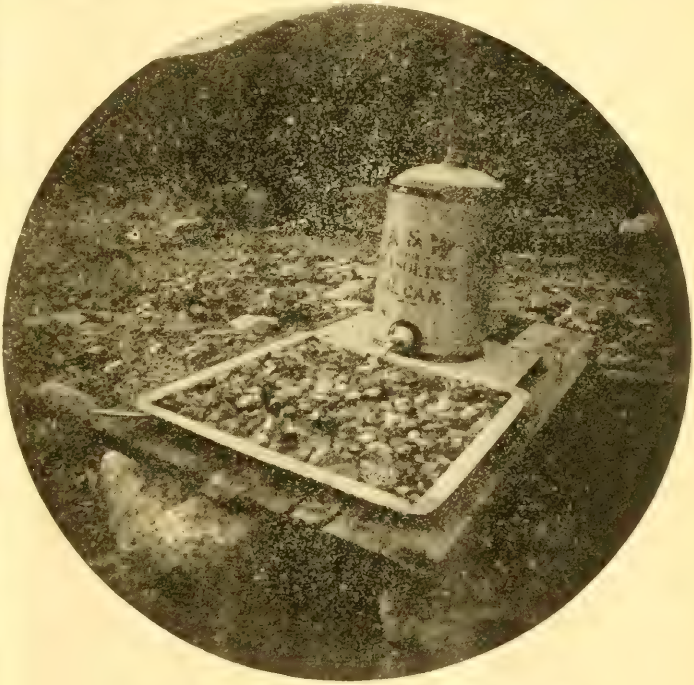
The bee-inspector was here Saturday. He thought my bees were in good shape for work. I have got my extracting-house completed that I was at work on when you were here. I have also got that sun evaporator completed. We have had quite a little shock of earthquake since you were here. It has given us about a third more water in the springs and artesian wells; and the water in the springs has been considerably hotter since. J. H. DUSTIN.

San Jacinto, Cal., Mar. 29.

Well, well! so the earthquakes really loosen up water in the artesian wells, do they? This is the first I ever heard of earthquakes doing anybody any good. Thanks for the facts, friend D. And is it really true that earthquakes as a general thing make hot springs still *hotter?* I am afraid I shall have to go back to my old theory, that hot springs get their heat from pent-up volcanic energy away down in the earth.

While at San Jacinto we were very pleasantly entertained at what many travelers might call a humble and unpretentious little hotel. It was kept by a widow lady and her daughters. The special feature that pleased me was to see the daughters all taking hold of the work. I soon found they were Methodist people, and I had some curiosity to know how professing Christians would manage a hotel, especially on Sunday. The sitting-room contained a piano; and one of the boys who belonged to the institution played well on the bass-viol; and during the whole of every Sunday afternoon that it was our good fortune to be there, they had, in the best room, a little concert of sacred music. The young men and women of the town dropped in, one after another, and each took part in vocal music, or playing on some kind of instrument.

I was pleased to note, too, that, in the town of San Jacinto, the girl who waited on us at the table seemed to stand just as well in good society as the banker's wife or anybody else. There was a bar, of course, but no liquors, and several of the boarders saw fit to pass their Sunday afternoons in smoking, and in playing cards. Mrs. Root wondered how our good Methodist friends could permit this. Now, I do not pretend to decide the question right here, as to whether a hotel-keeper should absolutely prohibit card-playing and tobacco-using in the barroom or not. If *I* kept a hotel, I am pretty sure I should undertake to get along without these things. But, at the same time, my way might not be the wisest one. I wish to say this, however: That the good music and refined conversation in the parlor gradually drew away the occupants of the barroom, one by one, until the card-playing and at least most of the smoking seemed to be dropped. Of course, it was the landlady's daughters who were waiters at the tables, and who performed the offices of clerk at the desk, chambermaid, or whatever needed to be done. They were all *ladies*, nevertheless; and I really wish that all the hotels in our land might hold out such an influence for good as does the San Jacinto hotel. Now, you must not think, because I told you the young people met and sung hymns all Sunday afternoon, that San Jacinto is a model place so far as morals are concerned. The beautiful romance of Ramona has most of its incidents located in this vicinity; and every visitor to the place should read the book. Shooting is no uncommon thing there; and the man who shot the Indian Alessandro walks about the streets as though he had done a meritorious thing instead of having committed a crime. Although his photograph is offered for sale side by side with that of the Indian woman called Ramona, I did not care to purchase his picture nor even to shake hands with him. Well, the nearest station to San Jacinto is called Alessandro, in memory of the book Ramona. Mrs. Root was more interested in the Indians, and in going to their Indian school, than in almost any thing else; and at length she was gratified to see the dusky children of the forest actually at work learning their tasks, like the children in any white school. And in our next we will try to give you a picture of the Indian boys and girls at school.



J. H. DUSTIN'S APPARATUS FOR WATERING BEES.

CONVENTION NOTICES.

The Carolina Bee-keepers' Association will meet at the Court-house in Charlotte, N. C., July 21. A. L. BEACH, Sec.
Steel Creek, N. C.

HIGH-PRESSURE GARDENING.

BY A. I. ROOT.

STRAWBERRY TIME.

Now is the harvest time for garden stuff and small fruits. The latter part of June is generally the height of the strawberry season in our locality. Mrs. Root has several times worried about strawberry time, for she said it would make us so much business that I would overwork again. It is not only the pickers that have to be looked after, but the folks who do the selling; and as we have a larger area of strawberries than ever before, it looked quite likely that there would be difficulty in selling the whole product. Of course, we might ship them off; but my experience has been so unsatisfactory in shipping strawberries that I have decided to sell what we can at home, and let the rest go. To-day, June 22, we are right in the midst of the battle. The town is full of berries, and loads are coming in from every direction; and the report comes, that, even though they offer them at 5 cts. by the bushel, they do not sell. I knew by past experience just what was needed—more energy and care all around. Of course, we have been having excessive rains, and many kinds of berries are soft. The pickers, too, where they pick by the quart, get eager to fill the boxes, and quite a few that are soft on one side, and sometimes rotten, get in. I went down among them myself, and told them that we could not sell our berries unless they were more careful. Sometimes, through false economy, they picked berries too small to be of any account; and every little while some new hand would be getting them before they were fully ripe. A little kind exhortation made quite a difference in the looks of the products. Then the market was watched, just as we watched the barometer. By ten or eleven o'clock, if sales were dropping, pickers were stopped, each one being directed to make a mark in his row just where he left off, so he could find it when he commenced again. As they began work at five in the morning, and sometimes earlier, they did not much mind resting from ten till two or three. If the folks on the wagon sold out sooner, of course we started to pick earlier; and when sales were so close on the heels of the pickers that they had to wait for berries, there is quite an advantage in being able to tell purchasers, "There, these berries have not been off the vines an hour." If any stock began to get poor or old, the directions were to let it slide for any decent offer. They were also directed to keep the berries out of the sun. For several days I have been stationed in front of our factory, where the berries are stored on the north side of our fruit-house, right out upon the walk. To save myself steps, half a dozen small boys are across the street in the plant-gardens, weeding, picking peas, cleaning the walks, or doing something to keep them busy until I need them. If a message comes from the wagon, half a dozen of them can pick peas, go to the berry-patch and help the berry-pickers, or bring in berries on the Daisy wheelbarrows. Monday we picked 10½ bushels; yesterday (Tuesday) we picked 9½. A heavy rain broke in upon us in the afternoon. This morning the wagon started out with an unusually heavy load; but by nine o'clock they had sold out. In the meantime I had done a lively business on the sidewalk, selling by the bushel where I had a chance. The price had been running from 5 to 7 cts., till one of the boys brought in a basket of Parker Earles. These went off so quickly at 8 cts., that, when another boy came in with some very choice Edgar Queens, I put the price at 10 cts., and they sold without a bit of trouble. Both of the two above varieties are wonderful acquisitions. The Beederwood, spoken of in our last issue, have ripened up better than I supposed they could ripen; but the vines were so overloaded that the largest part of them are necessarily small. While speaking of varieties, I wish to say a good word for Warfield No. 2. It is not a large berry, but it is of the deepest red of any berry that comes in market; and with this bright attractive color comes the most fascinating and dainty tart flavor, and that makes them my favorite berry. It is also quite firm; and when the weather is so wet that the others are in danger of mashing down in a heap, the Warfield is firm and solid. The Haverlands, on very rich soil, and with a superabundance of rain, are rather too soft to be handled. In fact, the Haverland and Bubach both, many of them, taste watery, and they sometimes begin to spoil before they are fully ripe. The matter may be remedied somewhat by planting them in single hills instead of matted rows; and this gives still larger berries; but it is quite expensive to mulch where plants are, say, a foot apart. In the matted row, very little mulching keeps all the berries out of the dirt. We have lost bushels and bushels of beautiful berries this season because the excessive wetness and lack of mulching made them too muddy to bring even half price. I should not forget to add, that, when all other resources failed to get rid of a great quantity of berries, the cook in our lunch-room has disposed of many bushels by making them into strawberry jam.

The lettuce-beds I spoke about in our last issue have done nobly; but when strawberries crowded on us at 5 cts. a quart, lettuce had to come down. In three days it fell from 20 cts. to 5 cts.; and then a great lot of it reluctantly (so it seemed) commenced to push up seed-stalks because we could not find a purchaser. Please notice that our management (*i. e.*, scanning closely each plant every day, and, as fast as one showed symptoms of wanting to shoot up to seed, taking it promptly for market) results in leaving in the seed-bed only those heads that are the *very last* to go to seed; and by taking our seed each season from those, we expect to get a strain that will make immense heads before shooting up. Very rich soil contributes to this.

We are still getting 10 cts. a quart for early peas. The first planting has been marketed, and the ground planted to something else; ditto the second planting, and we are now commencing on the third.

Cauliflower is easier to get into market with us than Wakefield cabbage; therefore we are selling cauliflower and cabbage now at the same price—5 cts. per lb.

A week ago I feared that, owing to the wetness of the season, we should never get rid of more than a small part of our cabbage-plants, tomato-plants, and celery-plants; but in just two days, after people could get their gardens made and ready for planting out, our plant-beds were cleaned out at such a rate that they looked almost like a ruin. But I tell you it is pleasant to tell every customer that we have plenty of nice plants, large or small, just as each one may prefer. Two men were kept busy from early in the morning until late at night taking up plants, and a great deal of the time a third one assisted, besides what I did. The way we put up plants now is this: An assortment of good stout paper bags is kept at different points where the plants are to be taken up. If the ground is not already very wet, with hose and sprinkler the ground is thoroughly soaked first. Then with a trowel the soil is lifted, roots and all, while the plants are gently pulled from the plant-bed, so as to bring all the roots and some of the soil. As each one is taken up it is laid on the ground; the next squarely on it, and so on. By the time you get out a dozen or two, there is quite a little pile of soil adhering to the roots. Then the operator grasps the whole bundle by the roots, squeezing the roots and dirt together until they make a tolerably compact ball. Taking this ball in one hand and the paper bag, that he had previously spread open, in the other, he pushes the ball of roots clear to the bottom of the bag. This is very important if you do not want the dirt to drop off and rattle to the bottom, thus leaving the roots loose and dry; then if the tops are large they are gently pressed together so as to let the paper bag come clear up above them. The result is, that, when the plants are handed to a customer, the roots are well protected from the air, and the ball of loose dirt envelopes them all; at the same time, the tops are exposed just enough (and no more) to give them the requisite amount of air to prevent heating. The top of the bag is, of course, left open. When the purchaser gets where he is ready to set them out, he tears the bag open, takes them out, one plant at a time, with some of the rich dirt adhering to the roots. All kinds of plants are handled in just this way. Where they are shipped by express or mail, dampened moss takes the place of the soil, as it weighs much less, and saves postage or express charges. Tomato-plants, if sent by mail, must be packed in a strong light box. The foliage of the tomato is too soft and watery to bear tying up like cabbage, celery, etc.

ONION-PLANTS.

When I first suggested the idea of selling onion-plants from the hot-beds, we planted such a quantity of Prizetaker and White Victoria seed that I thought we should have a great surplus; and for a time it seemed as if such would be the case; but as all the plants that have been put out for two months back started nicely, our farming friends have gained confidence, and they are even now, this 22d day of June, taking the plants by the hundreds and thousands. When it seemed likely that we should not sell them all, and some of the plants were getting to be overgrown, we pulled the White Victorias, and bunched them up, roots and all, giving three-fourths of a pound for a nickel. These were bunched up with rubber bands, tops squared off, and placed on the market-wagon. Pretty soon the boys informed me that, instead of using these onions for the table, purchasers were planting them out, and that they grew all right. As there were 40 or 50 onions in the three-fourths of a pound of sets, it was quite a cheap way to get plants; and it has also pleased us quite well to sell them in that way. Selling onion-plants has already become a leading industry;. and I feel quite a little pleasure to know that it was first suggested and started through our journal.

TOBACCO DUST ON MELON AND CUCUMBER VINES.

So far this year we have used no other remedy for bugs on vines than the tobacco dust; but we put it on by the double handfuls. Covering the plants all up with the tobacco dust does them no harm at all, but, on the contrary, it makes an excellent fertilizer. After a heavy rain, the strength of the tobacco dust is so far washed out that another dose is needed. If you buy the tobacco dust by the barrel, as every one should do, it is probably the cheapest preventive that can be used. During the few hot days when the vines were quite small, it seemed for a time as if the bugs were going to do a great deal of damage in spite of the tobacco; but heavier applications of the tobacco did the business. They gradually abandoned every hill where it has been applied as above.

FRIEND STEHLE'S REPORT ON STRAWBERRIES.

The strawberry season is closed for 1892, and, to sum up the result, I would say that we had about half a crop. Our loss was caused by the cold and excessive wet. It was too cold for pollen-gathering insects to work on the blossoms, hence many berries were worthless on this account. Then many berries rotted and caused a great deal of trouble and loss. We are, however, not discouraged, but have much reason to be thankful to the Giver of all good gifts.

Marietta, O., June 20. R. STEHLE.

LADY-BUGS AND POTATO-BEETLES.

Friend Root:—Last week, while visiting a friend up in Michigan, I went into his potato-patch for a little exercise, and soon my attention was drawn to the little yellow patches of potato-beetles' eggs on the under side of the leaves. Each one contained from ten to fifty eggs; and I usually found two or three clusters of them on each hill of potatoes. I went carefully over two rows of 100 hills each, and must have picked off at least 10,000 eggs. While at work at this I frequently saw a little beetle of the lady-bug family, in color a dark red, with black spots, and spry in its motions. I also observed now and then a bunch of eggs that looked as if something had eaten a part of them. The next day I went over two more rows, and in doing so caught sight of a red and black lady-bug with his head in a half-devoured cluster of eggs ; hence I concluded that this lady-bug has a fondness for potato-bugs' eggs, and ought to be encouraged. As I worked along I also happened on to a red and black lady-bug that would not run away, even when I touched it with my finger. A closer look showed that it was brooding over something enveloped in a downy fuzz. It seemed rather small for a chrysalis, and large for an egg. A day later the lady-bug was still there guarding her progeny. I judge from this that she raises only one young one at a time.

Perhaps Prof. Cook can tell us more about this red and black lady-bug; how it rears its one child, and whether or not Paris green will be likely to injure it.

When I began work on the potatoes they were not a foot high, but growing rapidly, and it was much slower work the second day than the first, just from the increased size of the potato-vines. On the first day I found no eggs hatched out; but on the second day I found a few patches where the grubs had hatched out and begun to eat the under side of the leaf; and it was evident that, in a few days, the grubs would be all over the vines, and then it would not be practical to pick them off. My friend had put Paris green on the vines, and was surprised to find bugs still at work on them; but I told him I thought the full-grown beetles were on the vines, not to eat, but to lay eggs, and so would not be affected by it. The grubs just hatched out were eating only the under side of the leaf, while the poison was all on the upper side. By and by, when they were a little larger, they would attack the whole leaf, and then the poison would finish them. J. E. WALKER.

Oberlin, Ohio., June 20.

MORE ABOUT CURRANT-WORMS.

Friend Root:—I wish to express my interest in those currant-worms that ruined your gooseberry crop. I am surprised that you do not understand them. I trust you did not let the sun go down on your wrath. Currant-worms do not live over the winter, as you intimate, in the ground. Oh, no! The eggs for the year's crop of worms were laid last fall on your bushes near the ground. The way to kill them is to take them before you can see them. It is easier to kill kittens before they get their eyes open, and so with currant-worms. Use your hellebore when the leaves of your currant or gooseberry bushes are about the size of a dime, and you need not spray more than a foot or eighteen inches above the ground, as the eggs are all laid, and the worms all hatch, near the ground, and eat or work upward; so unless you know where to look for them you will not see them until they are so large they soon defoliate the plants. Another thing, it takes much less hellebore and time to go over the lower part of the bushes early. I was formerly much troubled with these pests; but since adopting this way I have had but little trouble. Last year I sprayed my currants only once, and it now looks as though I should have to go over them but once this year. I have sprayed my gooseberries twice. J. E. Crane.

Middlebury, Vt., June 15.

RUBBER HOSE FOR THE GARDEN; TAKING CARE OF IT, ETC.

We shipped you our Para brand of hose, which has, without question, no equal, and is the best hose in the world. The writer has a piece 75 ft. long which has been in use, commencing this summer, four years, and is in as good shape today as it was when first bought. There is a great deal in giving it proper care, to make it last. The water should always be drained out after use; and do not let it lie in the sun when the water is not going through it; and if your customer observes these precautions we think he will have as good results as the writer. It is also quite necessary at the end of the year, when the hose is about to be put away, to inspect it carefully and see that there is no water in it, lest it freeze during the winter, which so often happens to a great deal of hose, and is never noticed, and for that reason it is not known why, on taking the hose out in summer, it should suddenly burst or become unsatisfactory in other respects. The W. H. H. Peck Co.,
per S. R. Driffield, Sec.

Cleveland, O., June 16.

OURSELVES AND OUR NEIGHBORS.

> Now there was a day when the sons of God came to present themselves before the Lord, and Satan came also among them.—Job. 1:6.

The whole book of Job is a strange part of the Bible, especially the first chapter; and I would particularly request our readers to read from the sixth to the thirteenth verses. You will notice the above are set apart by paragraphs. For ages there has been trouble in reconciling this book of Job; and many good men have questioned whether or not it should have a place in the Bible. As it still stands there, however, we may presume that it is right that it should stand there. We may not all agree, however, that such an occurrence actually took place exactly as it reads in the Bible. When Jesus gave us that beautiful parable of the prodigal son, none of his hearers, probably, and nobody since, ever took it for granted that such a thing actually happened as he related it. We all regard it as a parable; and at the same time it was one of the most beautiful and helpful parables that God ever gave to man. Of course, transactions like it are happening constantly; and very likely thousands upon thousands of wayward sons have decided to go back home and choose *righteousness* rather than *iniquity*, just from hearing or reading this simple little story.

Now, I presume there is no harm in taking the book of Job exactly as we take the parable of the prodigal son, if we choose to take it that way. It does not matter very much whether it actually happened, or whether it was simply a parable to make known to us truths that we might not readily get hold of otherwise. With our weak and limited human intellect we can comprehend or understand but very little of God, any way.

The story given us includes three principal personages, if I may so term them—God, Satan, and humanity. It teaches us God's relations to humanity, and also Satan's relations to it, and his relations to God. Mind you, the Bible does not anywhere tell us just why God saw fit to permit sin to come into the world; neither does it tell us why Satan should have such large liberty. It only says he does, and teaches us to beware of him. Let us commence at that sixth verse and look it over a little. What a strange idea! A day seems to have been appointed when the "sons of God" came to present themselves before the Lord. Now, we can not comprehend very much the nature of such a meeting; in fact, we do not exactly know what is meant by the expression "sons of God." It may have reference to some of the angelic hosts, or to God's leaders among the human family; or, may be, it is entirely figurative. In any event, "Satan came also;" and he came among the others. Our first thought is, to wonder that he should have the cheek and assurance to present himself among the sons of God. O my dear friend! if there is any thing that is absolutely *true* of Satan, it is, that he has any *amount* of cheek. You may expect him anywhere. If there is a religious gathering going on, he is sure to push himself right in among the foremost; and if any body of people are getting close to Christ Jesus, Satan will show himself sooner or later. He will be clothed like an angel of light; and his counsels for a time will be such as may deceive and delude the very wisest. That is Bible doctrine, and may be you have had some humiliating experience right in this very line.

A skeptical friend of mine said, not very long ago, that nine-tenths of all the ministers of the gospel who commit *crime* do so in the line of *licentiousness*. I am afraid the statement is pretty near the truth; but I sincerely hope that the whole *ten-tenths* is a *very* small number compared with all the ministers we have in our land. The idea of a *minister of God*—a spiritual leader—committing *crime* is awful to contemplate; and when we consider further, that, when a minister does commit a crime that has something to do with a *Christian woman*, the thought is indeed appalling. Surely, none but Satan could ever have succeeded in bringing about any evil that has to do with *womankind* and God's spiritual leaders. Such things are *terrible* when they do occur; and I hope our brethren of the ministry, as well as the Christian women of our land, will comprehend more and more, as the years go by, the fearful *wreck* and *ruin*, and the awful slur that they bring upon the name of Christ Jesus when they voluntarily become parties to any such evil. Pardon me for the digression; but please bear in mind that "Satan came also." Now comes another astounding truth. God, the creator and great ruler of the universe, the embodiment of truth and purity, condescends to speak face to face with the arch fiend of darkness. The first question would imply that Satan was, and knew he was, within certain limits and under certain restraints; for the Lord says, "Satan, whence comest thou?" We can imagine Satan sneaking back a little in the rear, perhaps fearing he should be ordered away entirely. But instead of that, the Lord seems to see fit to speak to him in what we might almost consider a friendly or neighborly way; and this very incident makes it seem to me as though this must be a parable. It is well to recognize that we can not expect a parable or fable to teach truth in *every* direction. I have heard our friends of the clergy express it by saying, "No parable can walk on all fours." Parables are generally expected to teach some principle or truth, or, may be, several truths; but a good deal must be a sort of filling-in to make the story consistent, and to make it read smoothly. I am inclined to think that this conversation between God and Satan is somewhat of a filling-in. Humanity comes on the stage just now in this wonderful poetic drama, as it has sometimes been called, and *God* and *Satan* discuss a *good man*. Satan, as you will notice, continually belittles humanity and mankind. He has no love for them. On the contrary, we know that for ages he has been actuated only by hatred of human kind. His whole office and mission is to make out humanity just as bad and selfish, and mean and low and animal, as he can; and when he can whisper to some poor troubled soul that he is only a miserable bungle that has always disfigured the face of the earth as a *hideous blot*, then he is in his element. If he can suggest, so as to have it put in practice, "Better end your miserable life the quickest and shortest way you can before going further," he has finished the job with that individual, and is ready for another. What we know of Satan seems to indicate clearly that this is the great ultimatum he is working for. If he can get the poor victim to murder his best friends before he kills himself, he is better pleased still. Every little while we read of some such awful tragedy. In fact, you may find records of such things every day if you choose to look at them. And not a community escapes—I had almost said not a family connection but that, sooner or later, has to pass and meet something of the sort.

In the parable, Job is represented as a model man—the best, perhaps, that anybody could pick out in any nation or clime. The Lord points him out. What does Satan answer? Something that is characteristic of him, for all the world. It is short, but it is Satanlike: "Doth Job serve God for naught?" How often do we hear such things said of a good man! "Oh, yes! who wouldn't be good when he has every thing that heart can wish? Just let him stand in *my* shoes, and see where his piety would go." I have heard this a great many times. My impression is, could this good man stand right square in the shoes of the one who is having so much trouble, he would, as a rule, begin to mend things right and left, from the very moment, because of the little text I have so recently used: "No good thing will he withhold from them that walk uprightly." But this book of Job puts another phase on that text. It gives us an extreme case, no doubt. A good man may sometimes be called upon to meet disaster, and sorrow and death; and he may meet them again and again for a very long time. God remembers, however, and, in his own good time, rewards. Well, in the parable God and Satan together plan to test this good man. Will he hold out, or will he not, under trials the most severe that can be put upon a child of God? If you pick out the best Christian we have in the State of Ohio, or in any other State, and send him to Congress, give him a big salary, expose him to bribes and all the temptations that usually meet a good man, how long will he hold out? Will his religion bear the test? Satan says there is no man and no religion that will hold out very long. He says it is only a question of time. Did you ever hear *people* as well as Satan talk in that way? Satan and these people say, "We read in books about men who would die before they would do a dishonorable thing; but don't you believe any thing of the sort. It is all stuff and nonsense. People are much alike, and sooner or later it crops out." These people *do* not say, but they might add, "It is a nice thing to talk about God and the influences of the Holy Spirit, etc.; but the truth of it is, there is no God about it. It is just religious cant and pretense. You just bring the right sort of temptation to bear, and down goes your godly man, or *woman* either, for that matter." My friend, when you feel like talking in that way, remember you are in Satan's service, and a follower of Satan. If you are a professing Christian, you are *awfully* out of the track.

Well, the bargain is made. Humanity is to be tried, and Satan is given all the liberty that either he or any other devil could ask for. He goes to work. But, mind you, not a hint of the awful trial our poor friend Job is to be subjected to is given to him. That would not do. That would spoil the whole of it. He must be human, just as we are. He is to have no assistance from on high. For the time being his Creator is to turn his back upon him, and Satan has full swing. The Devil says, very confidently, "Put forth thy hand now and touch all that he hath, and he will curse thee to thy face." Poor Job! Suppose it were you or I; how would we stand the ordeal? Are you sure, my friend, that out of the depths of trouble and despair you would say, as did Job, "I know that my redeemer liveth"? or, "Though he slay me, yet will I trust in him"? or, "My righteousness I hold fast, and will not let it go"?

"What good comes from believing in the existence of Satan?" some may ask. "Why not, in place of Satan, say 'evil impulses'?" Well, friends, my conviction is that, the sooner we believe in Satan exactly as we are taught of him of God's holy word, the better for humanity. A man has a quarrel with his neighbor. It waxes more and more bitter; and if it is not stopped it often ends in murder. Suppose you talk to one or both of the parties—may be you have tried to. Each one is so absorbed in dwelling on the mean traits of the other that he can not think or talk of any think else. Suppose, however, you suggest that the offending one is deluded—that is, fallen into the power of Satan, and is really to be pitied. Or suppose you say to both of them, "Dear friends, you are both making a great mistake. You magnify the wrong that each one of you has done the other. You are not yourselves. Satan has got between you; in fact, he has found a lodging-place in both of your hearts, I fear, and *he* is the one to blame. Fight *him;* but for God's sake do not fight each other. Just say to him, each of you, 'Get thee behind me, Satan,' and by so doing recognize the real source of the whole trouble, and see how quick you will be on friendly terms as you used to be." If you can get them to recognize this, and assent to it, the quarrel is over. Here you see a real belief in a devil is helpful. Suppose a boy in some community has done a great amount of mischief—in fact, so much that the whole neighborhood rises up against him, demanding that he be sent to a reform farm or prison. Suppose, however, it turns out a little later that some older person has been persistently putting him up to all these things—how quickly public sentiment changes! Why! the boy is almost exonerated by this discovery. Well, now, let us apply this same sort of reasoning to Satan's work; let us recognize, whenever one offends, that it is the prince of darkness back of him that is responsible for it all: and if the offending one can be made to believe this also, he is ready to turn about and give up his evil ways.

Satan is at bitter enmity with every sort of educating influence—especially that sort of education that goes along with Christianity. It seems as if he would leave no stone unturned nor means untried to discourage the work of reforming savages and civilizing the heathen. In my recent visit south we were discussing the schools and the methods employed for educating the colored people. A dozen of us were gathered one evening, just before going to bed, and we were considering the future of the colored folks in the South. The friends were all Southern people except myself. Several of them had been slave-owners in former years; and we had a real kind, friendly talk—such a talk as I never expected to be able to have with our Southern people. In fact, I did not know that those who formerly held slaves would care to discuss with a Northerner the whole social problem in such a kind, pleasant way. Most of us were professing Christians. They told me that the greatest obstacle in the way of elevating the colored students was a line of Satan's work I have already referred to—unchastity. Even the theological students among the colored folks, after they had got so well along in their studies that every one had reason to suppose they were truly born again, and lifted from the miry clay—even these theological students, or even pastors with people under their charge, would now and then relapse, and away went their Christianity. I do not know of any thing in this world that so thoroughly kills out spirituality as yielding to Satan in this way. Even permitting sensual thoughts to occupy one's mind grieves away the Holy Spirit and opens the gates to infidelity and unbelief; and the one who has gone so far as to break the command, "Thou shalt not commit adultery," seems from that time forth to be possessed with a hard, cold, sarcastic kind of infidelity. He jeers at Christianity, scoffs at purity, and not only evidently tries to make a hell here on earth, but he seems to take it for granted that this world is a hell, and all who profess any thing better are lying hypocrites. Now in regard to our colored brethren:

It seemed as if Satan could not rest when he found one of these people was determined to rise above the lusts of the flesh, and stand before God a pure and true man. Somebody suggested in that evening circle that it was not the *colored* people alone who fall from grace in this way, and then there was a general laugh all around. Then came the question that has come up so many times before, "How far does God hold a man responsible?" If a minister of the gospel, under terrible temptation, forgets his religion and his Savior, for even *one brief moment*, must he give up preaching for the rest of his life? This very thing has come to me face to face several times in life. What I mean is, I have seen the question come up, "Shall this man, after having confessed his sin of adultery, and asked pardon of God and his fellow-men, keep on preaching, or shall he do something else for a living?" May be I am wrong about it; but my conviction is, just now, that he had better do *something else* for a living.

I am now going to repeat something here that may seem to some a little out of place in a public journal; but I take the liberty on the ground that the man who is forewarned is forearmed. Satan can not well be pointed out too plainly. One of the friends present during that evening talk made a remark something like this:

"Look here, boys; suppose a pretty woman puts her arm around your neck — what are you going to do about it?"

"Yes, friends, what *are* you going to do about it?" said another.

The first speaker answered:

"Well, I do not know what the rest of you would do; but as for myself, it would be quite natural for *me* to put my arms around the *woman*."

And this brings us to face the fact that Satan may not only come before you as an angel of light, but he *may* possibly appear in the guise of — as our friend expressed it — a "pretty woman." She may be pretty in one sense, but not according to the old adage, that "handsome *is* that handsome *does*." Of course, any true Christian—and, for that matter, any true man—would at once say, "Get thee behind me, Satan." If he did not do so promptly and on the instant, he is unworthy of even the name of *Christian* or *man* either. In the very first page of the Bible we have very plain directions as to what a man should do under such temptation—"How, then, can I do this great wickedness and sin against God?" First of all, Joseph recognized that it was before *God* that he was standing, and the sin would be against *him*. He also explains to this woman that her husband had trusted him—in fact, he had given him charge over his whole household, and did not even *look after* things where Joseph had charge. As this was a woman of high rank, we have reason to believe that she was not only a beautiful woman, as the world puts it, but she was the wife of a high officer under Pharaoh. There is a kind of low-lived philosophy among a certain class of men, to the effect that, where a woman takes the lead, a man is partially or entirely relieved of responsibility. Shame on the *men* who can take any such stand as that! Job said, "Till I die I will not remove mine integrity from me." Even in heathen mythology a knight (who is supposed to be a *good man* and nothing more) is expected to lay down his life to defend the virtue of *any* woman. If occasion demands it, he must be father, priest, or *king* to any woman in distress. My friend, if Satan has ever appeared to you in any such guise as we have been talking about, and you are in danger of falling, let me suggest to you to imagine how the thing would look if this woman—beautiful woman if you choose to so put it—were *your own* daughter or sister instead of the daughter or sister of some *other* man. Oh! that alters the case. I tell you, it does *indeed* alter the case. But when God said, "Thou shalt love thy neighbor as thyself," he most surely intended it should cover all circumstances like the above. And this little illustration gives us a glimpse of Satan and of his work as perhaps no other thing could give it. Satan makes *self* fill the wide universe, but he would make *your neighbor* an utter nothing and not to be considered at all. So long as this lost or tempted woman was the daughter or sister of *somebody else*, it is a small matter. Does the whole wide world furnish another such parallel of brutish selfishness? Yes, grown-up men—the fathers of families—will sit down and coolly debate whether a man is very much to blame after all, when the woman *leads*. But let us just for a moment think if it were one of *our* children, or one of our sisters who has been tempted by Satan; and, dear friend, the thing is not so utterly *impossible*, after all. Here and there we have sad records of just such things. When it is your daughter or sister that is in the toils of Satan, how do you expect every real man to behave toward her? If he is a Christian, surely he will treat her as a father would treat an erring child; and if he is *not* a professing Christian, we hope he will have manhood enough about him to do the same.

Now, if any of you are ever tempted to think there are some good things even about Satan, let us go a little further. Suppose Satan gets a foothold, and criminal relations slowly develop between some man and woman. The woman is deluded into a belief that there *can* be something honorable and manly about such a man, and throws herself away for his sake. She braves society, braves public opinion, and breaks all the hold that relatives and friends have upon her; she yields herself to the solicitations of this *devil* in human form. What is the outcome? Does *he* honor or respect her for it? Does he show *gratitude* to her as time passes by? Why! the thing is absurd. He casts her off in just a few days, perhaps with oaths and curses, because she had been so silly. In a little time more his *hate* is turned against her, and perhaps she is murdered. Read about Amnon and Tamar, II. Samuel, 13th chapter, and especially verse 15: "Then Amnon hated her exceedingly; so that the hatred wherewith he hated her was greater than the love wherewith he had loved her. And Amnon said unto her, Arise, be gone."

SOME KIND WORDS, NOT ONLY TO A. I. ROOT ALONE, BUT TO THE WHOLE WIDE WORLD, FOR THAT MATTER.

Dear Brother A. I. Root:—In perusing your Notes of Travel, page 252, my attention was arrested when I read, "When we pray for the influences of the Holy Spirit in our hearts." I stopped and mused over the sentence. I thought to myself, "And is that all—only an *influence?*" I thought, "Well, however great a blessing even that would be, our real blessed privilege is incalculably greater. We are encouraged to ask, with the sweet assurance that our prayers will be answered, for the real personal Holy Spirit, the Comforter, to come and dwell in us." A few passages will, I think, make all clear. See Luke 11: 13: "If ye then, being evil, know how to give good gifts to your children, how much more shall your heavenly Father give the Holy Spirit to them that ask him?" Now turn to Romans 8: 9: "But ye are not in the flesh, but in the Spirit, if so be that the Spirit of God dwell in you." Verse 11: "But if the Spirit of him that raised up Jesus from the dead dwell in you, he that raised up Christ from the dead shall also quicken your mortal bodies by his Spirit that dwelleth in you." See I. John 3: 24: "And hereby we know that he abideth in us by the Spirit which he hath given us." What a stupendous thought—God the Holy Ghost is Deity communicated to us!

If you will bear with me I will give a few more verses on the same subject. Look at I. Cor. 3: 16: "Know ye not that ye are the temple of God, and that the Spirit of God dwelleth in you?" Read the 17th verse also. Now turn to II. Cor. 6: 16: "For ye are the temple of the living God; as God hath said, I will dwell in them and walk in them." Ephesians 5: 8: "Be not drunk with wine, wherein is excess; but be filled with the Spirit." I will now give a few quotations to show that the power of the Christian to rise above the little perplexities of every-day life, as well as to rejoice in peace and joy that he has continually, is through the inworking of the Spirit—the power of the Holy Ghost, and not a mere "influence." Turn to Romans 15: 13: "Now the God of hope fill you with all joy and peace in believing, that ye may abound in hope through the power of the Holy Spirit." Colossians 1: 8: "Who also declare unto us your love in the Spirit." Now look at I. Thessalonians 1: 6: "Having received the word in much affliction with joy of the Holy Ghost." Ephesians 3: 16: "That he would grant you according to the riches of his glory to be strengthened with might by his Spirit in the inner man." But, my brother, I feel sure that we are not far apart in these glorious truths. It appears to me that you were just a little absent-minded when you used the term "influences." You have more than an influence in your heart to enable you to write so sweetly as you do in those Home Papers. I always feel troubled when I see a long bitter article containing a lot of unkind taunting words, written by one who claims to be a true believer, evidently meant to wound some one in the keenest fashion in the writer's power. To one who has the love of God shed abroad in his heart by the Holy Ghost which is given us, the question will come up, Does the writer know that, by his professions of Christianity, he claims to be the temple of the living God? If ye have not the Spirit of Christ, ye are none of his. The fruit of the Spirit is love, joy, etc., not bitterness. S. T. PETTIT.

Belmont, Ont., Can., April 13, 1892.

[Dear friend P., I am very glad of your kind criticism. No doubt you are right, but perhaps an explanation may make it plainer why I should use the word "influences." In praying for our unconverted friends we usually pray that the Holy Spirit may strive with them, always recognizing that every sane individual is a free agent, and can yield to the Holy Spirit or not, as he chooses; therefore I have, perhaps, been in the habit of using the term "influences of the Holy Spirit," for these influences are round about us all, urging us toward justice and right, while the prince of darkness is as constantly endeavoring to turn us to evil. Your selections from God's holy word are all precious promises, and it makes quite a little Bible-reading to take them in the order in which you have arranged them. Your concluding thought ought to inspire us all with a more earnest determination to live up to our profession. I, like yourself, have often wondered how earnest Christians could let such words go into print. If, before sending them to the publisher, they would pray over the matter, and wait for some indication of the Holy Spirit as to whether what was written was right and proper, in line with what I recently told you in the Home Papers, I think many of them would be greatly modified or would not go into print at all, and I think that editors need a great deal of exhortation on this very point. We have many times regretted letting things go into print before suggesting to the writer that he might make all his points, and do it in a gentler and kinder way. Now, friend P., you and I both have committed ourselves—yes, publicly committed ourselves; and may this same Holy Spirit give us grace to carry out our resolution. Is there another brother who feels a desire to join in with us? There is never any exclusion, you know, in such a brotherhood as this.]

A SPONTANEOUS OUTBURST FROM DR. MILLER.

My dear old Friend:—I've just finished reading GLEANINGS, and feel like writing a few words to you more than any thing else in the world just now. It's a quarter of six, and a nice morning after the big rain and hail we had last night. It's the nicest world I was ever in. I'm sitting at the typewriter, with only a pair of overalls on me, and a vest, undershirt, shoes, stockings, and a pair of glasses. I'm so thankful that I'm not living in some city where I must be all dressed up, sweltering under the heat, sighing to get out into the country, in God's pure air and sunlight! Before I write any further I may as well tell you now that this letter is written with no special purpose—just because I feel like it; and if you haven't time to read it now, you can read it a week later. I think the thing that made me feel most like writing you this little letter was the reading of "Ourselves and Neighbors" in June 15th GLEANINGS. I enjoyed it ever so much. It's capital. Then your gardening talks interest me very much.

How I'd like to see you, and have a real good talk with you! I feel bad sometimes to think that so much of the writing I do to Medina is so much in the nature of fault-finding and scolding. But if I don't scold, who will? And then I know you'll take it in good part from me, for I'm sure you know that I love you. By the way, I'm glad to say, as you will see in one of the Straws, that the Myers spray pump does grand work on roses and any thing it will reach. It's a pity so much was claimed for it.

I just believe that, if your identity could be changed, and you lived at San Jacinto, Tropico, or Wilson's Peak, and then could come on a visit to Medina, where some one else had a big supply-plant, a big garden, hot-beds, etc., you'd find Medina was the one place in all the world that had just the climate to suit you, and you'd want to move there instanter. God bless you!

Marengo, Ill., June 17. C. C. MILLER.

GLEANINGS
BEE CULTURE
A Journal Devoted to Bees and Honey and Home Interests
Illustrated Semi-Monthly
36 Pages 7×10
$1.00 Per Year

And, behold, the devils cried out, saying, What have we to do with thee, Jesus, thou Son of God? art thou come hither to torment us before the time?—MATT. 8:29.

WE have secured some very excellent photographs of Mr. Langstroth standing in front of the Home of the Honey-bees; and we hope in a later issue to give some of the results in half-tone.

THE *Australian Bee Bulletin*, Vol. I., No. 1, has just come to our table. It is a monthly periodical, and contains 16 pages. GLEANINGS extends her greeting, and trusts they will meet with success.

OUR bees in the house-apiary are now put into separate hives, and confined exclusively to those stands. This is a great improvement in that it prevents bees from crawling all around on the inside of hives, and mingling more or less from one colony to another.

WE would call especial attention to the autobiographical sketch of our special artist, R. V. Murray. In its allusion to great persons and things it is exceedingly interesting. It tells of P. P. Bliss, John G. Whittier, Dr. C. C. Miller, P. Benson, Sr., one or two of the great music-houses, the Chicago fire, and many other things of interest. Be sure to read it, and then you'll know who P. Benson was.

CHARLES DADANT & SON, of Hamilton, Ill., write, "We have never, never seen so poor a season, and yet we think our bees are going to make a crop by and by. Every thing is soaking wet most of the time." This status of things is nearly as bad in our own vicinity, and most of the reports from various parts of the country tell a similar tale. A few have reported, so far, big crops of honey—"best in years." Basswood promises "big" if the multitude of flower-buds means any thing, in our vicinity. By the way, adulteration can not be going on very extensively, else why do the market reports show "last year's crop of extracted honey scarce, and waiting for new crop"? This speaks strongly for little or no adulteration.

A SORT of impression seems to prevail, that the slotted separators which we have lately introduced are regarded by us as something new and original. Nothing could be further from the truth. These separators were introduced years ago; but for some reason or other the times were not ripe for them, and they were used only here and there by rather obscure bee-keepers. When we adopted them for the Dovetailed hive, we did so knowing they were old, and so stated it. Some of our friends seem determined to think that we were trying to rob them or somebody of apicultural glory. The mere fact that we introduced them, and they became popular, does not signify at all that we invented or originated it. It does signify that we have seen their practicability, and therefore believe it is our duty to give to bee-keepers what is both useful and practicable.

WE are having better success with the Doolittle cell-cups, but we find there is a great difference in colonies in regard to cell-building. While some will complete the whole number given them, others, under conditions that are as nearly identical as may be, will reject every one. We have followed Doolittle's directions to the letter, with all his later suggestions; and we must account for the difference in results by a difference in bees and hives. We are of the opinion that a deeper hive than the Langstroth is more favorable for cell-building, for the reason that the upper story, or the upper part of it is at a greater distance from the brood in the lower hive. Putting between the two stories of the colony an extra empty body or super seems to have a beneficial effect. Nine-tenths of all our cells are reared on Doolittle's plan; and while it is not an entire success, it is sufficiently so to warrant us in the continuance of the plan.

SOME two months ago we inserted an advertisement, in a couple of issues (April 15th and May 1st) from John Hewitt, Sheffield, Eng., "Hallamshire Bee-keeper," as he has signed himself in his articles. Since giving insertion to his advertisements we have found that he is entirely unreliable. This information we get from various sources in England, and from parties there who are wholly disinterested, either in Punic bees or in the Punic-bee controversy that has appeared in the *British Bee Journal*. In view of the excellent behavior of the Punic bees we have, we regret very much to say this; but we do not wish our readers who have seen the advertisement of John Hewitt to send him money with no probability of getting any returns. And, again, we are assured that the prices he charges for Punic bees are enormous—far in excess of their real value. If Punic (or, rather, Tunisian) bees should prove to be a valuable acquisition we are informed that they can be imported direct from Africa at a moderate price.

BRO. HUTCHINSON, of the *Bee-keepers' Review*, has already begun to inquire when the North American shall meet at Washington, and whether it is too early to decide the question. Not a bit too early. Quite a number at Albany thought it would be well to hold the convention on a G. A. R. day when very low railroad rates could be secured; but resident bee-keepers in and about Washington have assured us that the hotels at that time will be overcrowded, and accommodations will therefore be poor. It has been suggested that some other date, therefore, be selected when reduced railroad rates will be nearly if not quite as good and still the accommodations at the capital not overcrowded. We are satisfied of this one thing, however: Our association of itself is not large enough to secure the necessary low rate to induce bee-keepers to attend to any considerable degree. We ought, therefore, to select some date when there will be some "big doings" at the national capital, when generally reduced rates will be allowed. Let us be thinking the matter over, because there are many bee-keepers who will want to go to Washington, and take their wives, sweethearts, and friends along.

THAT NEW BINGHAM SMOKER.

A FEW days ago Mr. Bingham sent us one of his latest improved Doctor smokers, with the curved snout, and device for lifting the cone off from the fire-box, with the request that we try it in the apiary. At first we were not favorably impressed with it; but the more we tried it, the more we liked it. We have two Doctor smokers in the apiary one with a straight nozzle, and the other with a curved one; but we notice that our boys take the latter. "How about the Clark?" you may ask. Oh, yes! we use that too. There are certain kinds of work where our boys prefer the Clark, and for certain kinds the Bingham. For a large volume of smoke, and for general subduing qualities, we believe there is nothing equal to one of the large Bingham smokers. Our boys always use them when working over cross colonies. "Take care there!" you will say; "you will be hurting your trade in Clark smokers." Yes; but the Clark sells for about one-fourth the price of the Bingham, and ought not to be expected to do the work of a high-priced implement; and, besides, even if it should kill the trade entirely, we propose to tell the truth, no matter which way it cuts.

QUEENS TO FOREIGN COUNTRIES; IS THERE TROUBLE AHEAD?

ONE of our customers in Jamaica ordered of us one Carniolan queen, one Doolittle queen, and one of our own select tested Italians. Not having the Carniolans, we ordered Mr. F. A. Lockhart, of Lake George, N. Y., to send one of his select tested direct; and to make sure every thing would be all right, we sent him one of our export cages with directions for mailing, etc. We had several times before sent queens to Jamaica, and, of course, had no doubt that we could do so again. In a week or ten days we received a letter from Mr. Lockhart, stating that the queen which he had sent had been returned to him, and marked "Prohibited by Country of Destination." Having previously sent queens to the same island, as above stated, and not hearing of any trouble from the Doolittle queen, and therefore supposing she went through all right, we wrote to the Second Assistant Postmaster General, and the following is the answer we received:

POSTOFFICE DEPARTMENT.

OFFICE OF FOREIGN MAILS.

Washington, D. C., June 20, 1892.

Sir:—Referring to your letter of the 17th instant, to the Second Assistant Postmaster General, asking for an explanation of the circumstance that some packages of "live bees" addressed for delivery in Jamaica, W. I., which you have caused to be mailed in this country, have been despatched to Jamaica, while others have been returned to you marked "Prohibited by Country of Destination," I have to inform you that "live bees" are transmissible by mail to those countries only which have given notice that their legislation permits live bees to be admitted to the mails. The postal officials of Jamaica have not given such notice, and consequently live bees are not allowed to be forwarded by mail to Jamaica. The only explanation that can be given of the fact that such packages have been allowed to go forward to that island is, that the nature of the contents of said packages escaped observation at the postoffice in New York.

The foregoing statement applies equally to packages of bees addressed for delivery in the Australasian colonies, none of those colonies having as yet indicated their willingness to allow packages of live bees to be admitted to the mails exchanged between them and foreign countries.

I am, very respectfully,
Your obedient servant,
N. M. BROOKS,
Superintendent of Foreign Mails.

We have known that the Australian colonies, as well as some of the other foreign countries to which we have sent queens, provided no legislation whereby queen-bees could be mailed to their ports. In the absence of any statement, we have taken the liberty to send the queens right along, just the same, paying letter postage. In all probability Mr. Lockhart marked his cage "Queen-bee," and that is just exactly what would excite the attention of red-tape officials. Our queens are all sent in plain boxes—simply the address and necessary postage attached. If the aforesaid officials should put these boxes to their ears, they would probably be able to detect the buzzing of bees. While we do not make any attempt to explain, we do not try to conceal the contents of the package, or disguise it for something else. The countries not making legislation admitting queens are depriving a certain class of their citizens of real substantial benefits; and it is only because their bee-keepers have not taken the necessary pains to see that suitable legislation is made in their favor. We trust that the Australian bee-keepers will give their attention to this matter at once—especially so as they have a new bee-journal that will be able to represent their interests.

AUTOMATIC SWARMERS, AND HOW THEY WORK AT THE HOME OF THE HONEY-BEES.

WE have had two swarms come out and hive themselves automatically, *a la* Platt. The devices have worked to perfection. The swarm we mentioned on page 456, last issue, as having come out, not only hived itself, but the entire swarm seems to have taken up with their new quarters and gone to housekeeping, while the parent hive has nothing but young bees, sealed brood, and queen-cells, just as it ought to have. The other swarm must have come out while we were at church on Sunday. At any rate, in the fore part of the week we found it in its new quarters as successfully and nicely hived as if we had put them there ourselves.

For the first time we began to feel really hopeful and enthusiastic in regard to the automatic swarmers; and it now appears to us that the idea first made public by E. L. Pratt, of hiving the bees automatically in a hive, *the entrance to which they have long been accustomed*, is the key to success; and even Mr. Alley, in his latest swarmer, we notice, has adopted the Pratt idea, although, if we remember correctly, he at first condemned it. Mr. Pratt's automatic swarmers, both on the same principle, were illustrated on page 199, March 1, and page 318, May 1. Of the two, we rather prefer the latter, as does also Mr. Pratt, we believe. The last named requires only one bottom-board; and any one who has the ordinary Dovetailed hives and furniture can construct it by buying of Mr. Pratt his bee escape honey-board. We should mention, also, that these swarmers are so constructed that the hives may be left for ten days or two weeks after the swarm has issued, and that every thing will go on all right.

Other swarmers may be a success; but a number of reports have shown that some of them, at least, hived only from a third to a half of the bees, the other portion going back into the old hive. It should be thoroughly understood that we have had only two swarms come out and hive themselves so far, and that neither one nor two swallows make a summer; therefore it would not be wise for any one to invest largely in any one of the plans at first. Before the season is over, however, we shall probably know more—that is, providing those who have them under experiment will carefully report results.

DOING THINGS THOROUGHLY.

I have written on this subject, I presume, every little while during almost every year since Gleanings has had an existence; and notwithstanding what I have written and what I have talked, the greater part of my *life* is given to teaching people to do things *thoroughly*, and afterward following after and making good, as best I can, the consequences of doing work in a half-hearted or slipshod way. We can pardon small boys for only half doing their work, for they are not old enough to know better; but we have a right to expect that, with years of experience, comes thoroughness. Come to think of it, I do not believe I will deliver a very long lecture just now after all. The matter was simply brought to mind by finding three very valuable eggs for hatching, remaining in a basket. Four weeks ago to-day I received by express from Wm. N. French, New Haven, Vt., a basket of White Wonder eggs. Now, I have had so many mishaps in setting hens that I felt afraid I should have only trial and tribulation with this lot. So I gave the basket of eggs to an old experienced farmer—the one who has charge of the horses, poultry, etc. I told him they were very valuable eggs, and to put them under the first sitting hen, and see that nobody went near to or disturbed her. In course of time she hatched out eight White Wonder chickens, and I felt glad to think I had succeeded so much beyond my expectations. I saw the basket standing around several days afterward, with its oilcloth covering only partly torn off, and the excelsior in which the eggs were packed not entirely removed. I remembered feeling a little worried and anxious about it, and I wondered why he didn't take out every thing, turn the basket over, and shake it, to be sure he had got *all* of those precious eggs. Finally, to-day a basket was wanted in a hurry, and I felt a little vexed to see that one still standing, doing nobody any good. So I tore off the covering, told the express clerk to take care of the excelsior, for it would be nice for him to pack his goods in, and there they were — three of those precious eggs wrapped up in paper ever since they came just four weeks ago today. And what else do you think happened? Why, there was not a sitting hen to be found on the place, while for three months back they have pestered us continually by wanting to sit. Never mind—all is well that ends well; and may be a hen will want to sit before night; and I shouldn't wonder if those three White Wonder eggs would give us three more chickens, and that will make eleven. Oh! hold on!—hold on! It seems to me some one has said that it is not a good plan to count chickens *before* they are hatched.

Moral.—Whenever you empty a basket, box, bag, barrel, or any thing else, be sure you get "all there is in it." I do not know of any thing that has ever vexed me much more than having boys bring only a *part* of what they were sent for, saying they "did not *see* the rest."

TOBACCO COLUMN.

CONDITIONS UNDER WHICH WE GIVE SMOKERS TO PERSONS WHO STOP USING TOBACCO.

First, the candidate must be one of those who have given up tobacco in consequence of what he has seen and read in this department. Second, he promises to pay for the smoker should he ever resume the use of tobacco in any form, after receiving the smoker. Third, he must be a subscriber to Gleanings. Any subscriber may, however, have smokers sent to neighbors or personal acquaintances whom he has labored with on the matter of tobacco-using, providing he give us his pledge that, if the one who receives the smoker ever uses tobacco again, he (the subscriber) will pay for the smoker. The one who receives the smoker in this case need not be a subscriber to Gleanings, though we greatly prefer that he be one, because we think he would be strengthened by reading the testimonials from time to time in regard to this matter. The full name and address of every one who makes the promise must be furnished for publication.

If you think I deserve a smoker for not using tobacco you may send one. If I use it again you shall have double pay for it.
W. F. Rinch.
West Alexandria, Ohio, May 18.

Please send to W. J. Jemmerson, Junction City, Texas, a smoker. I am a subscriber to Gleanings, and will pay for it if he commences tobacco again. L. L. Skaggs.
Junction City, Tex., Mar. 24.

Send a smoker to my son. If he returns to the use of tobacco in any form I will pay for the smoker. I would rather pay you for 40 smokers than for him to return to the habit.
W. J. Forehand.
Fort Deposit, Ala., May 14.

I have given tobacco a final discharge; and by so doing I think I am entitled to a smoker. I think your plan for stopping the use of tobacco is a good one. C. Barnes.
Roxobel, N. C., April 29.

I see you offer to those who give up tobacco, a smoker free. I promise to use it no more; and if I do I will pay you the price of smoker. There is also a neighbor of mine, A. M. May, who has agreed to do the same, and he asked me if he could get one to. A. E. Hill.
Seattle, Wash., April 29.

Having quit the use of tobacco in March last I think Mr. J. M. Ross deserves a smoker. Please send him one; and if he uses the filthy stuff again I will pay for the smoker.
Connersville, Ind., Apr. 29. A. S. Brown.

I am glad to report that Mr. Hiram Yarboro, one of our most wealthy and highly esteemed citizens, has given up the use of tobacco, and wants you to send him a smoker, as a pledge, to Adairsville, Ga. He told me to tell you, that, if he ever used tobacco again, he would pay you $10 for the same.
Bowls, Ga., May 6. R. W. J. Stewart.

Do you still give smokers to those who quit smoking? If so, is father entitled to one? He quit last August, after smoking over 37 years. If he ever starts again I will pay for it; will also pay expenses. Jessie Waddell.
Wingham, Ont., Can., Apr. 28.

I want you to send a smoker to W. R. Tibbets, So. Cabot, Vt., on the tobacco scheme, as this is as genuine a case of quitting the habit as I ever knew of. Should he ever resume the habit he understands that he is to pay for the smoker, and will do it to. We are having quite a tobacco revival here at present. One merchant has quit the use of it, as his physician told him that he could live a year if he did not stop short off, and it has set others to thinking.
South Cabot, Vt., May 3. D. S. Hall.

JUST OUT!

THE A B C OF

Ferret Culture.

Containing Full Instructions for the Breeding, Feeding, Care, and Management of this little animal. It tells How to Raise them in the Greatest Numbers, with the least expense. Price ten cents; by mail, 12 cents.

Free! My new price list of pure Italian Bees and Queens, White and Brown Leghorn Chickens, and White and Brown Ferrets, and Scotch Collie Pups. Address **N. A. KNAPP,**
Rochester, Lorain Co., Ohio.

☞In responding to this advertisement mention GLEANINGS.

Muth's

Honey - Extractor.

Square Glass Honey-Jars,
Tin Buckets, Bee-hives.
Honey-Sections, &c., &c.
Perfection Cold-Blast Smokers.

APPLY TO
CHAS. F. MUTH & SON, Cincinnati, O.

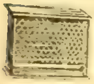
Send 10-ct. stamp for "Practical Hints to Bee-keepers."
Please mention this paper.

PATENT WIRED COMB FOUNDATION

HAS NO SAG IN BROOD-FRAMES.

THIN FLAT - BOTTOM FOUNDATION

Has No Fish-bone in Surplus Honey.



Being the cleanest is usually worked the quickest of any Foundation made.
J. VAN DEUSEN & SONS,
Sole Manufacturers, 5tfd
Sprout Brook, Montgomery Co., N. Y.
Please mention this paper.

ELLISON'S FINE ITALIAN QUEENS and Bees.

PRICES FOR JUNE AND AFTER.

1 untested queen	$ .75
3 " "	2.00
1 tested queen	1.50
3 " "	4.00
Select Tested, each	3.00

Two-frame Nucleus with any queen, $1.50 each extra. Safe arrival guaranteed. **W. J. ELLISON,** 10d
Catchall, Sumter Co., S. C.
Please mention this paper. 11 12 1 44

PUNIC QUEENS

FROM IMPORTED MOTHERS. Each, $2.00. This is a fine race of bees, and will give better results than any other race or strain. Ready to mail May 25.
HENRY ALLEY, Wenham, Mass.

☞In responding to this advertisement mention GLEANINGS.

ITALIAN QUEENS. Tested, $1.25. Untested, 80c. MRS. A. M. KNEELAND,
P. O. Box 77. Mulberry Grove, Bond Co., Ill.

POULTRY. Choice Fowls and Eggs for sale at all times. Finely illustrated circular free. GEER BROS., St. Marys, Mo. 21tfdb

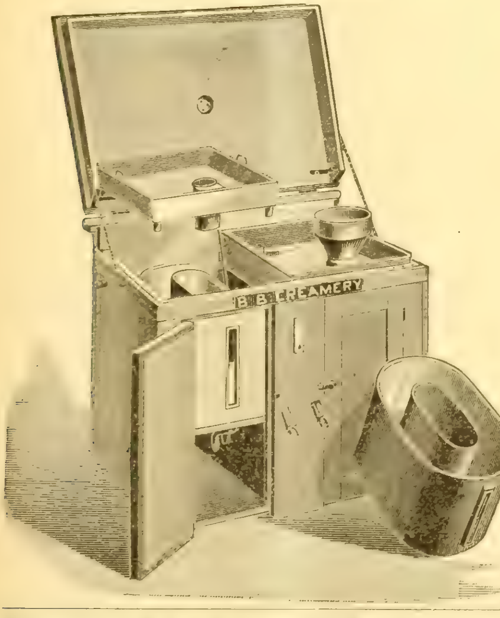
JUST OUT!

TILE ✠ DRAINAGE.

BY W. I. CHAMBERLAIN, A. M., LL. D.,

Formerly Secretary of the Ohio State Board of Agriculture, and late President of the Iowa State Agricultural College. At present Associate Editor of the Ohio Farmer.

This is a valuable companion to our other rural books. It embraces the experience of forty years of one of our foremost practical agriculturists, who has laid with his own hands over 15 miles of tile.
Price 35c; by mail, 40c.
A. I. ROOT, MEDINA, OHIO.



B. B. Creamery.

A. I. Root is making for the B. B. Creamery Co., of this place, the creamery shown in adjoining cut. No doubt many of his readers keep a small dairy. If so, you should investigate this most invaluable aid to dairymen. Several have testified that they have secured enough more cream to pay for the creamery in six months. Besides, think of the amount of labor saved. This is the most successful creamery to use without ice. You notice one of the cans standing in front. The milk is put between the two walls of this can, and the water comes up the center, all around the outside, above and below, giving the greatest cooling surface. It being only 5 inches from inner to outer wall, it leaves no milk further than 2½ inches from the cooling surface. Write for circular giving further particulars.

PRICE LIST.

No.	Capacity of can.	No. of cows.	Price.
0	16 quarts.	1 to 2.	$22.50
1	30 "	2 to 4.	30.00
2	60 "	4 to 8.	40.00
3	75 "	8 to 12.	50.00

Price includes milk-strainer, glass thermometer, faucet, brush, etc. We give 5 per cent off for cash, and make special terms to dealers and agents. Address
B. B. Creamery Co., Medina, Ohio.

Foundation, Wholesale and Retail.

If you would like to see how nice foundation can be made, send for free samples. Special prices to dealers on Foundation and Sections, etc.
Free price list of everything needed in the apiary. 6tfdb (Near Detroit.)
M. H. HUNT, Bell Branch, Mich.

Get the Best! Five-banded Golden Italians that will give satisfaction. Queens by return mail, $1 each; 6 for $5; for full particulars send for circular. 13tfdb

CHAS. D. DUVALL, Spencerville, Md.

☞In responding to this advertisement mention GLEANINGS.

UNTESTED ITALIAN QUEENS.
From best imported stock, 50c each; ½ doz., $2 75. Circular free. Safe arrival and satisfaction guaranteed.

H. G. QUIRIN, BELLEVILLE, HURON CO., O.

STILL on hand about a dozen of those specially mated, yellow-to-the-tip breeders of last fall's rearing, at $2 00 each. Beautiful Warranted Queens, 80c; 3 for $2.00. For square dealing and good goods I refer to the editor of this journal 13-14d.

W. H. LAWS, Lavaca, Ark.

GOLDEN HONEY QUEENS.
Queens in July, untested, 75c; ½ doz., $3 60; tested, $1.50; select tested, $2.00: extra select, $4.00; the very best, $8.00; imported, $5.00. 200 queens ready to send by return mail. Leininger Bros., Ft. Jennings, O.

IMPORTED ITALIAN QUEENS. $3 25: UNTESTED, 75c.
W. C. FRAZIER, Atlantic, Iowa.

VIOLINS MURRAY & HEISS. CLEVELAND OHIO.
MUSICAL GOODS OF ALL KINDS. **GUITARS** CATALOGUE FREE
MANDOLINS

LITHOGRAPH LABELS

In 12 Colors, at $2.00 per 1000.

The 12 colors are all on each label. They are oblong in shape, measuring 2⅛x2⅝. They are about the nicest labels we ever saw for glass tumblers, pails, and small packages of honey. We will mail a sample, inclosed in our label catalogue, free on application, and will furnish them postpaid at the following prices: 5 cts. for 10; 25 cts. for 100; $1.00 for 500; $1.75 for 1000. A. I. ROOT Medina, O.,

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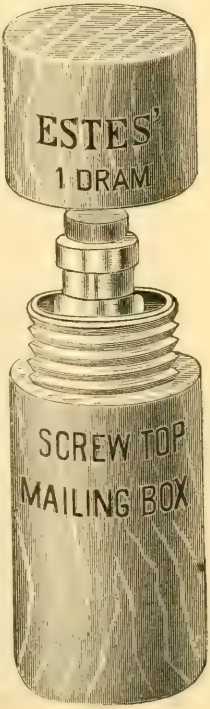
MAILING . .
. . BLOCKS
—FOR—
SAMPLES .
—OF—
. . HONEY.



The adjoining cut shows a very convenient package for mailing samples of honey and other liquids. The cut is only about half size of the one we are prepared to furnish, which holds ½ ounce, and gives a good taste of the honey and some to spare. We also use a very wide-mouthed bottle so the honey will run out easily. You notice the top screws on, closing it tight and making a very handy package, easily opened, and accepted by the postal authorities. We have just bought 25 gross so as to be able to sell them at only 5c each, 55c per doz. By mail, 3c extra on one, or 2c each extra in quantities.

A. I. ROOT,
Medina, O.

VIRGIN QUEENS. 50 CTS. EACH; select, 75 cts. Untested, 75 cts.; select, $1.00. Tested Italian, $1 50; select, $2.50. I breed, *a la* Doolittle, from leather-colored imported mother, also yellow strain. Bees, in nuclei or by the pound, cheap

J. J. HARDY, LAVONIA, GA.

☞In responding to this advertisement mention GLEANINGS.

Black and Hybrid Queens For Sale.

I have a few mismated Italian queens, that are No. 1 queens; will sell for 35c; 2 for 60c; black queens, 20c; 3 for 50. Safe arrival guaranteed.
JAMES M. GORDON, Belmont, Belmont Co., Ohio.
12-16db

I have a few mismated golden Italian queens for sale at 40 cts. each, safe arrival guaranteed. Stamps taken. JAS. M. SMITH, Perkiomenville, Pa.

I have hybrid queens for sale at 25 cts. each, or 5 for $1.00. Address ALBET HINES,
Independence, Iowa.

A few mismated Italian queens at 35 cts.
C. G. FENN, Washington, Conn.

A premium free to all who send me an order for 1 or more of my fine mismated Italian queens, raised from a choice tested, prolific, leather-colored mother, at 35 cts. for 1, or 3 for $1.00. I will send free a recipe for making one of the best tooth-powders known to the dental profession.
ENOCH ANDERSON, Dentist, Comanche, Tex.

Kind Words From Our Customers.

My advertisement in GLEANINGS this year has paid me well. DR. G. L. TINKER.
New Philadelphia, O., June 15.

Do not continue my ad't in GLEANINGS. The most orders I have received in one day was 26, and the least was 12. I can fill but a few more.
Carlisle, Ark., April 28. G. E. DAWSON.

Friend Root:—The wheelbarrow came along all right, and we are pleased with it. The baby has had a ride in it. E. W. PITZER.
Glenwood, Ia., May 2.

The Dovetailed hive you sent me is admired by all who see it. If crops are good here this season I aim to sell 100 of those hives next winter for you.
White Rock, Ark., May 6. A. L. BAKER.

I received T tins this morning in good shape. Many thanks for promptness. You people are always so prompt and reliable that it is a pleasure to send to you for goods. J. K. DAVIS.
Dixmont, Pa., May 24.

I am, as the boys say, "kinder stuck" on your establishment, and some way I would rather order from you than any one else when all things agree. I have three sample hives, sent me free, from other factories, for inspection, and use if they pleased me; but, as I have before told you, I know but very little about the business, and would rather deal with men who *use their hives themselves in their own apiaries*, and can recommend them from experience.
Dyer, Tenn., June 20. R. U. JONES.

OUR BOOK ON TILE DRAINAGE.

Mr. W. I. Chamberlain:—I've read "Tile Drainage" thoroughly, and it is the most interesting subject I've "tackled." Let me say that you make the thing as clear and plain as could possibly be done, I believe, and progressive men ought to find it wonderfully valuable. I wish we had more men like yourself and Terry around here.
HARRY M. WHEELOCK.
Fergus Falls, Minn., May 26.

I HAVE 100 ONE-YEAR-OLD

HYBRID QUEENS,

WINGS CLIPPED. SEND ME 50 CTS. FOR 1, OR $1.00 FOR 3.

In regard to the color of these queens and their bees, there are all the grades that can come from a cross between Albinos and Italians, but they have been bred with an eye solely to their honey-gathering qualities, so I find my sections slowly filling up with honey, while not one of my neighbors has any gains to report. Send 50 cents for one of these tested queens and have some surplus honey, if there is any anywhere. You can, just as well. My neighbors are wanting my queens also, and will get them, if they are not too close by.

Address **W. B. WEED,**
HARTFORD, WASH. CO., N. Y.

☞In responding to this advertisement mention GLEANINGS.

BY RETURN MAIL.

Punic queens from **Imported Mothers,** each, $2.00. **Italian** queens from our **Hundred Dollar** strain, $1.25. **Golden** Carniolan bees possess all the good qualities of other races. Queens large and prolific, each, $1.50. Our Italian and Golden Carniolan bees are as handsome as five-banded bees. Fifteen per cent discount on all orders for more than one queen. The **American Apiculturist,** one of the oldest bee-papers published, will be mailed free three months to all purchasers of queens. Safe arrival and satisfaction guaranteed. Sample copy of Apiculturist and 8-page catalogue free.

HENRY ALLEY,
Wenham, Essex Co., Mass.

☞In responding to this advertisement mention GLEANINGS.

Queens Yellow to the Tip Mated with Drones Yellow all over.

Queen-mother from an entirely different strain from the drones, hence a direct cross. None but selected drones allowed to fly from the most desirable colonies. I am 4 or 5 miles from any bees except my own. I can therefore largely control the mating of my queens. Seven years as a queen specialist and no complaints that the golden Italians are inferior to the leather variety convinces me that the specialist, by very careful selection, and *always* crossing with another strain, can combine beauty with business. The novice only fails. Send for circular. Price of queens, 75c each.

James Wood, No. Prescott, Mass.

☞In responding to this advertisement mention GLEANINGS.

SEND 50 cts. for trial box of Eucaloline. A never-failing remedy for PILES, poison oak, cuts, bruises, burns, or wounds, etc. Made from the famous Eucalyptus-tree. Address 13d

G. W. GLOVER, JR., South Pasadena, Cal.

Queens by Return Mail.

Reared in the natural way from swarming cells. Just look at the following very low prices, and order at once.

Tested, each, $1.50; warranted purely mated, each, 80c; warranted purely mated, ½ doz., $4.50; warranted purely mated, per doz., $8.00.

All the above are reared in full stocks from my old reliable honey-gathering strains. Address

WM. W. CARY, Colerain, Mass.

Send for 40-page catalogue. Full line of Bee-keepers' Supplies and Bees at prices way down. 13tfdb

---

Golden Italian Queens

Warranted purely mated, $1.00 each; six for $5.00. Our five-banded Italians are good workers, gentle and beautiful, and the queens are very prolific. All queens reared by the Doolittle method, and are almost pure yellow. We handle our best bees without smoke or veil, and can jar the hive or blow our breath on the bees without exciting them. Money-order office, Cable, Ill. 1tfdb

S. F. & I. TREGO, Swedona, Ill.

☞In responding to this advertisement mention GLEANINGS.

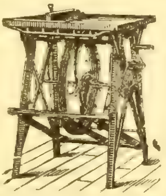
IF YOU WANT BEES

That will just "roll" in the honey, try **Moore's Strain of Italians**, the result of 13 years' careful breeding. Reduced prices: Warranted queens, 80c each; 3 for $2.00. Strong 3-frame nucleus, with warranted queen, $2.50. Safe arrival and satisfaction guaranteed. Those who have never dealt with me I refer to A. I. Root, who has purchased of me, during past 12 years, 582 queens. Circulars free.

J. P. MOORE, Morgan, Pendleton, Co., Ky.
11-12d Money-order office, Falmouth, Ky.

In writing to advertisers please mention this paper.

Barnes' Foot-Power Machinery.



Read what J. I. PARENT, of CHARLTON, N. Y., says—"We cut with one of your Combined Machines last winter 50 chaff hives with 7-inch cap, 100 honey-racks, 500 broad frames, 2,000 honey-boxes, and a great deal of other work. This winter we have doubled the amount of bee-hives, etc., to make, and we expect to do it all with this saw. It will do all you say it will." Catalogue and Price List free. Address W. F. & JOHN BARNES, 545 Ruby St., Rockford, Ill.

When more convenient, orders for Barnes' Foot-Power Machinery may be sent to me. A. I. ROOT.
23tfd

VANDERVORT COMB-FOUNDATION MILLS.

Send for samples and reduced price list.

1tfd **JNO. VANDERVORT, Laceyville, Pa.**

Please mention this paper.

PAINT FOR BEE-HIVES.

After much experimentation, and a careful study into the paint question, we offer a mixed

Paint Prepared Especially for Bee-Hives.
It will not Chalk or Flake off.

We guarantee it to be free from adulterants, such as whiting, barytes, lime, and other substitutes that do not add to the enduring qualities of the paint. Our paint is made of strictly pure lead, strictly pure zinc, and genuine French ocher of about equal proportions, mixed in pure linseed oil. It is generally recognized that there is no pigment more permanent than French ocher; and this, combined with zinc and lead, makes a most durable combination. The resultant tint is a pale straw color. Price: Pint, 35c; quart, 60c; half-gallon, $1.00; gallon, $1.75. Half a gallon will cover ten No. 1 Dovetailed hives two coats.

A. I. ROOT, Medina, O.

SECTIONS.

Snow-white Sections,
Cream Sections,
No. 2 Sections.
Finest goods made.
We have a large stock on hand,
and can fill small and large
orders promptly.

G. B. LEWIS CO.,
9tfdb **Watertown, Wis.**
Please mention this paper.

My Catalogue of APIARIAN SUPPLIES for 1892 is free; My Pamphlet, "HOW I PRODUCE COMB HONEY," by Mail, 5 cts.

GEO. E. HILTON, Fremont, Mich.
Please mention GLEANINGS. 2-13db

SAVE MONEY.—Send to J. P. H. Brown, Augusta, Georgia, for his price list of supplies. Hives and foundation at wholesale rates. 4tfdb

ALWAYS
ON
TOP

Our Golden and Leather Colored Italian Queens.

Bred for Business.

Tested, in June, $1.25; untested, 75c; 3 for $2.00. Our stock consists of 300 colonies devoted to bees and queens for the trade. **Orders filled by return mail.** Send for catalog of supplies, etc.

JNO. NEBEL & SON, High Hill, Mo.

P. S.—A. J. Fields, of Wheaton, Ind., writes: "The queen and bees received of you last spring made 147 lbs. of comb honey, and took first premium at three fairs." 8tfdb

☞In responding to this advertisement mention GLEANINGS

TESTED ITALIAN QUEENS.

50 tested Italian queens for sale at $1.00 each, to be delivered June 1st to 15th, all raised last fall from an imported, and best select tested queens. Untested queens, July 15th and after, 70c each; 3 for $1.75; 6 or more, 50c each. D. G. EDMISTON,
9tfdb Adrian, Lenawee Co., Mich.

☞In responding to this advertisement mention GLEANINGS

SECTIONS.

$2.50 to $3.50 per M. Bee-Hives and Fixtures cheap. **NOVELTY CO.,**
6tfdb **Rock Falls, Ilinois.**

☞In responding to this advertisement mention GLEANINGS

OTTUMWA BEE-HIVE FACTORY.

Bee-keepers, look to your interests.. Every thing in the line of bee-supplies constantly on hand Price list free. **GREGORY BROS. & SON,**
1-12d Ottumwa, Ia. South side.

In responding to this advertisement mention GLEANINGS.

IMPORTED QUEENS,

In May and June, each	$2.00
In July and August, each	1.80
In September and October, each	1.60

Money must be sent in advance. Safe arrival guaranteed. Queens that die en route, if returned in the letter, will be replaced by mail, postpaid. No order for less than 8 queens *by express* will be accepted.

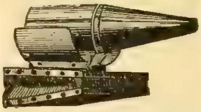
E. BIANCONCINI,
1-11d **Bologna, Italy.**
Please mention this paper. 7d

· DO YOU WANT ·

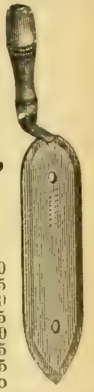
Good, gentle, and prolific bees? Then get an Albino (or white-banded Italian) queen. Catalogue free.
5tfd A. L. KILDOW, Sheffield, Illinois.

☞In responding to this advertisement mention GLEANINGS.

✤BEST ON EARTH✤



ELEVEN YEARS WITHOUT A PARALLEL, AND THE STANDARD IN EVERY CIVILIZED COUNTRY.



Bingham & Hetherington

Patent Uncapping-Knife,

Standard Size.

Bingham's Patent Smokers,

Six Sizes and Prices.

Doctor Smoker,	3½	in., postpaid	$2.00
Conqueror "	3	" "	1.75
Large "	2½	" "	1.50
Extra (wide shield)	2	" "	1.25
Plain (narrow ")	2	" "	1.00
Little Wonder,	1¾	" "	65
Uncapping Knife			1.15

Sent promptly on receipt of price. To sell again, send for dozen and half-dozen rates.

Milledgeville, Ill., March 8, 1890.
SIRS:—Smokers received to-day, and count correctly. Am ready for orders. If others feel as I do your trade will boom. Truly, F. A. SNELL.

Vermillion, S. Dak., Feb. 17, 1890.
SIRS:—I consider your smokers the best made for any purpose. I have had 15 years' experience with 300 or 400 swarms of bees, and know whereof I speak. Very truly, R. A. MORGAN.

Sarahsville, Ohio, March 12, 1890.
SIRS:—The smoker I have has done good service since 1883. Yours truly, DANIEL BROTHERS.

Send for descriptive circular and testimonials to
7tfdb **BINGHAM & HETHERINGTON, Abronia, Mich.**

☞In responding to this advertisement mention GLEANINGS

WANTED—LADY OR GENT IN EACH county to distribute and collect for Brabant's ladies' toilet cases; 238 articles, worth $1; will send sample and full particulars by mail for 35c in stamps; returnable if not satisfactory; territory free; $3 to $5 per day easily made. Address J. C. FRISBEE, general agent, 172 Maple St., Denver, Col. Reference, A. I. Root, Medina, O. 8-12db

☞In responding to this advertisement mention GLEANINGS

TAKE NOTICE!

BEFORE placing your orders for SUPPLIES, write for prices on One-Piece Basswood Sections, Bee-Hives, Shipping-Crates, Frames, Foundation, Smokers, etc. PAGE & KEITH,
14tfdb New London, Wis.
Please mention this paper.

J. C. SAYLES,

HARTFORD, WIS.,

MANUFACTURES APIARIAN SUPPLIES OF EVERY DESCRIPTION. CATALOGUE FREE TO ALL. SEND YOUR ADDRESS.
3tfdb Please mention this paper.

Cash for Beeswax!

Will pay 25c per lb. cash, or 28c in trade for any quantity of good, fair, average beeswax, delivered at our R. R. station. The same will be sold to those who wish to purchase, at 32c per lb., or 35c for *best selected wax.*

Unless you put your name *on the box,* and notify us by mail of amount sent, I can not hold myself responsible for mistakes. It will not pay as a general thing to send wax by *express.*

A. I. ROOT, Medina, Ohio

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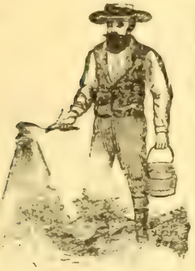
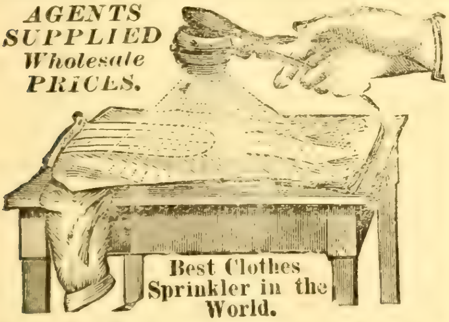
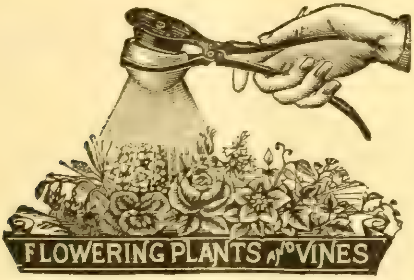
SPECIAL NOTICES.

A NEW IMPLEMENT FOR SPRAYING PLANTS, APPLYING INSECTICIDES, ETC.



The little implement shown in the cuts below has been having quite a sale for a few months back. It is not a spraying-pump; but although it is small and cheap, it answers the purpose of a more expensive machine, for many purposes. In shape it is something like a lemon-squeezer; but instead of a lemon you have a ball made of pure soft rubber, with very minute perforations on one side, and a sort of valve on the other. Shut it up, then dip it into a bowl or pail of water, and, while immersed, open the handles. This fills the ball with the liquid. Now hold it over the plant you wish to spray, and it sends a great number of streams so infinitessimally small that the result is a fine vapor, or dew, covering both the upper and under side of the leaves, as the operator may choose. For sprinkling clothes, or watering plants in the window, of course you use pure water. For applying poisons, however, you use any of the solutions of London purple, Paris green, hellebore, or pyrethrum, according to the insects to be banished. For convenience you want an extra rubber ball for the poisons. It uses the poisons in such economy that a pint bowl of the liquid may be made to go over a very large surface. The first engraving shows the manner of applying it to a hill of potatoes; the next, to sprinkling clothes; and the third, to sprinkling plants and vines. It is also recommended for bugs and insects on carpets, furs, or clothes. For this purpose a carbolic-acid solution is used. Full directions for using the different kinds of poisons are sent with each sprayer. The regular price of this little implement is 50c. By buying them in quantities, however, we are enabled to sell them for 35c. If sent by mail, the price will be 10c more. Extra bulbs for various liquids will be sent by mail for 20c each. There is one feature about this rubber-ball sprinkler that gives it an advantage over all of the metal nozzles; and that is, it can not clog nor rust up; for, by applying sufficient pressure, the obstruction may be forced through the openings, for these openings are of rubber. We are using one of these rubber balls on the end of a hose, for sprinkling our plant-beds. When the full head of the water is let on, the rubber ball expands to more than double its ordinary size. This, of course, makes the perforations correspondingly larger, and this brings them about the right size for watering beds.


AGENTS SUPPLIED Wholesale PRICES.
Best Clothes Sprinkler in the World.



PROSPECT OF STRAWBERRY-PLANTS AT THE PRESENT WRITING.

As we have not had a drop of rain for ten days, the plants out in the field are not in condition to send out; and those under irrigation in our plant-beds have not yet got a going so there are any to fill orders; therefore the friends will have to wait about another two weeks, I presume, before we can ship strawberry-plants to them. The exceedingly heavy rains during the fore part of the month, that flooded our beds and packed the earth so hard, have had much to do with keeping the plants back. We are stirring the soil, however, hauling on manure in place of that which was washed away, and doing every thing we can to be able to furnish good strong-rooted plants for our customers. Parker Earle and Edgar Queen will be double our usual rates, viz., 20c for 10, or $1.50 per 100. Warfield will be usual prices, 10c for 10, 75c per 100, or $6.00 per 1000. By mail, 5c for 10, or 25c per 100 additional.

Later.--Just as the above was written (July 13) a very welcome shower came, which puts a more favorable aspect on things, and we can fill small orders, say for only 10 plants, *at once.*

THE TOMATO BOOK AND ITS TEACHINGS.

Just as we go to press, the following comes from friend Day in regard to the tomato crop of the present year:

> The tomato crop here has been enormous. Crystal Springs has shipped about 430 carloads, and could have shipped 100 cars more if we had had crates in time. The canning-factory is doing a heavy business. The crop is about all gone from here that will go north. J. W. DAY.
>
> Crystal Springs, Miss., July 11.

You can see from the above whether the teachings of the new tomato book are probably sound or not, for friend Day certainly practices what he teaches.

JAPANESE BUCKWHEAT FOR LATE SOWING.

We have now a full supply of nice seed at the regular prices given in our catalogue; viz., trial packet, 4 ounces, by mail, postpaid, 5c; 1 lb. by mail, postpaid, 15c; peck, 35c; ½ bushel, 60c; bush., $1.00. These latter prices include bag to ship it in.

PURE ITALIAN QUEENS.

Untested, 70c each; 3 for $1.75; 6 or more, 50c each. Tested queens, $1.00 each.
D. G. EDMISTON, Adrian, Lenawee Co., Mich.

ELMER HUTCHINSON

Can furnish untested 5-banded Italian queens for $1.00 each; 6 for $5.00. Tested queens, $1.50 each; breeding queens, $4.00 each.
13tfdb *Vassar, Tuscola Co., Mich.*

UNTESTED QUEENS, 75c Each; Select, $1.00. Tested Italian, $1.50; select. $2.50. I breed *a la* Doolittle, from leather-colored imported mother, also yellow strain. Bees, in nuclei or by the pound, cheap.
J. J. HARDY, LAVONIA, GA.

WANTED.–To rent or on shares, an apiary of about 200 colonies of bees. Gulf States, or California. ENGLISH B. MANN, New Iberia, La.

TESTED ITALIAN QUEENS, 80c

IN JULY AND AUGUST. In June, $1.00 each. Mismated queens, 40 cents. 11-15db
J. C. WHEELER, PLANO, ILL.

JUST OUT!
THE ABC OF
Ferret Culture.

Containing Full Instructions for the Breeding, Feeding, Care, and Management of this little animal. It tells How to Raise them in the Greatest Numbers, with the least expense. Price ten cents; by mail, 12 cents.

Free! My new price list of pure Italian Bees and Queens, White and Brown Leghorn Chickens, and White and Brown Ferrets, and Scotch Collie Pups. Address **N. A. KNAPP,**
12tfdb **Rochester, Lorain Co., Ohio.**

☞In responding to this advertisement mention GLEANINGS.

AND DON'T YOU FORGET IT

I TELL you what, Jones, **Levering Bros.** sell the best goods and at the lowest price of any one I've struck yet. The largest and best equipped

Bee - Hive Factory

in the West. The Dovetailed Hive and New Hoffman self-spacing Frame a specialty. Every thing used by practical bee-keepers at wholesale and retail. Send for their free Illustrated Price List, and save money. Supply Dealers, send for their Wholesale List. Address

LEVERING BROS.,
6-15db **Wiota, Cass Co., Iowa.**

Please mention this paper.

Sections at $3 per 1000. These are perfectly smooth, and first-class. Brood-foundation 45 cts. per lb. All supplies equally low. Goods shipped direct from New York city. 1-18dt.

I. J. STRINGHAM,
92 Barclay St., N. Y.

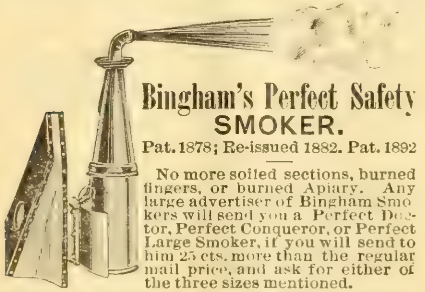
☞In responding to this advertisement mention GLEANINGS.

ITALIAN QUEENS. Tested, $1.25. Untested, 75c. MRS. A. M. KNEELAND,
P. O. Box 77. Mulberry Grove, Bond Co., Ill.

UNTESTED ITALIAN QUEENS.
From best imported stock, 50c each; ½ doz., $2 75. Circular free. Safe arrival and satisfaction guaranteed.

H. G. QUIRIN, BELLEVUE, HURON CO., O.

☞In responding to this advertisement mention GLEANINGS.



Bingham's Perfect Safety SMOKER.

Pat. 1878; Re-issued 1882. Pat. 1892

12tfdb

No more soiled sections, burned fingers, or burned Apiary. Any large advertiser of Bingham Smokers will send you a Perfect Doctor, Perfect Conqueror, or Perfect Large Smoker, if you will send to him 25 cts. more than the regular mail price, and ask for either of the three sizes mentioned.

Bingham & Hetherington, Abronia, Mich.

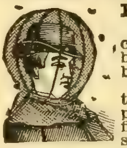
☞In responding to this advertisement mention GLEANINGS

Italian Bees and Queens For Sale.

Untested queens, $1.00; tested, $1.50. Bees, $1.00 per lb. Colony, $5.00. Also barred Plymouth Rock eggs for sitting, $1.00 per 13.
7-16db MRS. A. A. SIMPSON, Swarts, Pa.

☞In responding to this advertisement mention GLEANINGS

GLOBE BEE-VEIL



By Mail for $1.00.

A center rivet holds 5 spring-steel cross-bars like a globe to support the bobinet Veil. These button to a neat brass neck-band, holding it firmly. It is easily put together; no trouble to put on, or take off. An absolute protection against any insect that flies. Will go over any ordinary sized hat; can be worn in bed without discomfort; fits any head; does not obstruct the vision; folds compactly, and can be carried in the pocket; in short, it is invaluable to any one whom flies bother, mosquitos bite, or bees sting.

Extra Nets, 50 Cents Each.

THOMAS G. NEWMAN & SON,
199 Randolph St., Chicago, Ill:

Please mention this paper.

Bee - Keepers' ✻ Supplies.

We are prepared to furnish bee-keepers with supplies promptly and at lowest rates. Estimates gladly furnished, and correspondence solicited. Our goods are all first-class in quality and workmanship. *Catalogue sent free.* Reference, First National Bank, Sterling, Ill. Address 1-24db

WM. McCUNE & CO.,
Sterling, Illinois.

☞In responding to this advertisement mention GLEANINGS.

5 CTS. will get a sample cage of my 5-banded bees; 1 untested 3-banded, 60c; six for $3.00; 1 5-banded, 75c; six for $4.25. Full colonies, nuclei, and supplies cheap; catalogue free.
12tfdb **CHAS. H. THIES, Steeleville, Ill.**

Please mention this paper.

500 Colonies of Bees Devoted to Queen-Rearing.

Write for prices on large quantities.

TWO MILLION SNOW - WHITE SECTIONS.

Write for prices on large quantities.

Send for our 24-Page Catalogue of Dovetailed Hives, Smokers, Extractors, Etc.

LEAHY M'F'G CO., Higginsville, Missouri.

Please mention this paper. 5tfdb

GOLDEN HONEY QUEENS.
Queens in July, untested, 75c; ½ doz., $3.60; tested, $1.50; select tested, $2.00: extra select, $4.00; the very best, $8.00; imported, $5.00. 200 queens ready to send by return mail. Leininger Bros, Ft. Jennings, O.

IMPORTED ITALIAN QUEENS, $3 25; UNTESTED, 50c.
12tfdb W. C. FRAZIER, Atlantic, Iowa.

Bee-Hives and Sections

A specialty. Foundation, Smokers, etc., in stock. Send for new list, free.
4tfdb **W. D. SOPER, Jackson, Mich.**

Please mention this paper.

A Four-Color Label for Only 75 Cts. Per Thousand.

Just think of it! we can furnish you a very neat *four-color* label, with your name and address, with the choice of having either "comb" or "extracted" before the word "honey," for only 75 cts. per thousand; 50 cts. per 500, or 30 cts. for 250, postpaid. The size of the label is 2⅛x1 inch—just right to go round the neck of a bottle, to put on a section, or to adorn the front of a honey-tumbler. Send for our special label catalogue for samples of this and many other pretty designs in label work.

A. I. ROOT, Medina, O.

I HAVE 100 ONE-YEAR-OLD

HYBRID QUEENS,

WINGS CLIPPED. SEND ME 50 CTS.
FOR 1, OR $1.00 FOR 3.

In regard to the color of these queens and their bees, there are all the grades that can come from a cross between Albinos and Italians, but they have been bred with an eye solely to their honey-gathering qualities, so I find my sections slowly filling up with honey, while not one of my neighbors has any gains to report. Send 50 cents for one of these tested queens and have some surplus honey, if there is any anywhere. You can, just as well. My neighbors are wanting my queens also, and will get them, if they are not too close by.

Address **W. B. WEED,**
HARTFORD, WASH. CO., N. Y.

☞In responding to this advertisement mention GLEANINGS.

BEE-HIVES, SECTIONS, ETC.

We make the best goods and sell them cheap.
Our Sections are far the best on the market.
Our Works turn out the most goods of any factory in the world.
Our goods are known as the best throughout the United States and Europe.
Write for free, illustrated catalogue and price list.

G. B. LEWIS & CO., WATERTOWN, WIS.

☞In responding to this advertisement mention GLEANINGS

VIOLINS MURRAY & HEISS. CLEVELAND OHIO.
MUSICAL GOODS OF ALL KINDS. GUITARS CATALOGUE FREE
MANDOLINS

☞In responding to this advertisement mention GLEANINGS

Queens Yellow to the Tip
Mated with Drones Yellow all over.

Queen-mother from an entirely different strain from the drones, hence a direct cross. None but selected drones allowed to fly from the most desirable colonies. I am 4 or 5 miles from any bees except my own. I can therefore largely control the mating of my queens. Seven years as a queen-specialist and no complaints that the golden Italians are inferior to the leather variety convinces me that the specialist, by very careful selection, and *always* crossing with another strain, can combine beauty with business. The novice only fails. Send for circular. Price of queens, 75c each.

James Wood, No. Prescott, Mass.

☞In responding to this advertisement mention GLEANINGS

BY RETURN MAIL.

Punic queens from **Imported Mothers,** each, $2.00. **Italian** queens from our **Hundred Dollar** strain, $1.25. **Golden** Carniolan bees possess all the good qualities of other races. Queens large and prolific, each, $1.50. Our Italian and Golden Carniolan bees are as handsome as five-banded bees. Fifteen per cent discount on all orders for more than one queen. The **American Apiculturist,** one of the oldest bee-papers published, will be mailed free three months to all purchasers of queens. Safe arrival and satisfaction guaranteed. Sample copy of Apiculturist and 8-page catalogue free.

HENRY ALLEY,
Wenham, Essex Co., Mass.

☞In responding to this advertisement mention GLEANINGS.

HONEY COLUMN.

CITY MARKETS.

NEW YORK. *Honey.* Comb, new fancy white, 1-lb., 14; extracted, Southern, 65@75 per gallon. Demand good for rich-flavored honey. Orange-blossom, 7@7½; if in good new 5-gallon cans, 2 in a case, 7½@8. *Beeswax*, 27@28; market firm, supply small.
July 8. F. G. STROHMEYER & CO.,
New York City.

KANSAS CITY.—*Honey.*—We have just received a number of shipments of new honey, same selling at 16c.
HAMBLIN & BEARSS,
July 8. 514 Walnut St., Kansas City, Mo.

BOSTON.—*Honey.*—We quote you our market on honey as follows: 1-lb. comb, white, 12@14, demand very light; extracted, 7@8. No beeswax on hand.
BLAKE & RIPLEY,
July 8. Boston, Mass.

CHICAGO.—*Honey.*—Some new western comb on the market, sells at 10@15, according to quality and condition. Extracted, steady, at 6@7@8, according to kind, quality, and flavor. *Beeswax*, 25@27.
R. A. BURNETT,
July 7. 161 So. Water St., Chicago, Ill.

ALBANY.—*Honey.*—There is nothing doing in comb honey, and but very little in extracted. *Beeswax* is coming forward more freely and selling at 24@25.
CHAS. McCULLOCH & CO.,
July 8. Albany, N. Y.

DETROIT.—*Honey.*—No new honey in the market, and what there is left of the last year's crop is very undesirable, and selling at 11@12. Extracted, 7@8. *Beeswax*, 25.
M. H. HUNT,
July 8. Bell Branch, Mich.

KANSAS CITY.—*Honey.*—The old crop of comb honey is all cleaned up. We quote new: No. 1, white, 1-lb. comb, 16. Extracted, old, 7. *Beeswax*, 20@25.
CLEMONS-MASON COM. CO.,
July 9. Kansas City, Mo.

NEW YORK.—*Honey.*—Demand for comb honey at a standstill; extracted, moving very slowly. Markets on above, Southern, 60@70c per gallon, according to quality; clover, 6½@7; buckwheat, 5@5½. *Beeswax*, demand moderate, 25@27.
July 8. CHAS. ISRAEL & BRO.,
110 Hudson St., New York.

CINCINNATI.—*Honey.*—There is a good demand for extracted honey at 5@8c on arrival. We solicit shipments, stock on hand being small. Demand is slow for comb honey, and prices nominal at 12@16c for best white in the jobbing way. *Beeswax.*—Is in fair demand at 23@25c on arrival, for good to choice yellow.
CHAS. F. MUTH & SON, Cincinnati, O.
July 11.

CHICAGO.—*Honey.*—Demand as yet limited for comb. Market 15c for best white. Extracted, active sale and scarce, 7@7½c. *Beeswax.* Dull, 26c.
July 8. S. T. FISH & CO., Chicago, Ill.

WANTED.—One hundred thousand pounds choice comb and extracted honey. Name source from which your honey is gathered. Mail samples at once and quote prices. 13tfdb
J. A. BUCHANAN & SONS, Holliday's Cove, W. Va.

IF YOU WANT BEES

That will just "roll" in the honey, try **Moore's Strain of Italians**, the result of 13 years' careful breeding. Reduced prices: Warranted queens, 80c each; 3 for $2.00. Strong 3-frame nucleus, with warranted queen, $2.50. Safe arrival and satisfaction guaranteed. Those who have never dealt with me I refer to A. I. Root, who has purchased of me, during past 12 years, 582 queens. Circulars free.

J. P. MOORE, Morgan, Pendleton, Co., Ky.
11-12d Money-order office, Falmouth, Ky.

In writing to advertisers please mention this paper.

MORE HONEY can be secured by giving plenty of room in the supers to the very end of the harvest. This plan results in a larger proportion of unfinished sections, but they can be finished up at a GOOD PROFIT by "feeding back" during the hot weather that comes, in July and August, between basswood and fall flowers. All that is needed is a knowledge of "how to do it," and this is given, even to the smallest detail, in one chapter of **"ADVANCED BEE CULTURE."** Remember, too, that this is only one chapter out of 32. Price of the book, 50c. The REVIEW one year and the book for $1.25. For $1.75, the Review, the book, and a fine young laying Italian queen will be sent. Queen alone, 75c.

W. Z. HUTCHINSON, Flint, Mich.

DR. J. W. CRENSHAW, Versailles, - Kentucky,

Offers for Sale

Untested Italian Queens at $1.00 each through May and June; after, 75c each. Safe arrival guaranteed. Queens raised only from Imported mother. Drones only from selected and tested mothers.

Also CELERY PLANTS from July to September, at $2.00 per M. 7-18db

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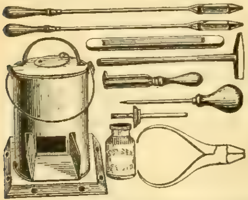


OATMAN'S SOLDERING AND REPAIR KIT

Consists of fire-pot, soldering-irons, solder, and soldering-fluid, with tools compl'te as shown in cut, with directions for soldering different metals, and how to keep your soldering-irons in shape. Whole kit, boxed, 12 lbs. Shipped on receipt of $2.00. Agents wanted.

O. & L. OATMAN,
8-7db **Medina, Ohio.**

☞In responding to this advertisement mention GLEANINGS

QUEENS FREE!

Italians, untested, 70 cts. Warranted, 80 cts. Tested, $1.00. **One Choice Breeder Given Away** with each dozen. **Five-Banded Golden Queens, $1 to $2.** Write for lower prices. Satisfaction guaranteed. Bees, 80c per lb. **F. C. MORROW, Wallaceburg, Ark.**

Please mention this paper. 10tfdb

BEE SUPPLIES

RETAIL —AND— WHOLESALE.

Everything used in the **Apiary.** Greatest variety and **largest** stock in the West. New catalog, **54** illustrated pages, free to bee-keepers. **E. KRETCHMER, RED OAK, IOWA.**

Please mention this paper. 2tfdb

JENNIE ATCHLEY

Will send you either three or five banded Italian queens in June, July, and August, 75c each; $4.20 for 6, or $8.00 per doz. Safe arrival and satisfaction guaranteed.

1tfdb **Floyd, Hunt Co., Texas.**

Please mention this paper.

75c. Golden Queens by Return Mail. 75c.

My Golden Italians are good workers, and gentle. Queens are carefully bred from best stock. Three queens, $2.00; six for $3.50; dozen, $6.00. Safe arrival and satisfaction guaranteed. Money order office, Daytona, Fla. **JOHN B. CASE,**

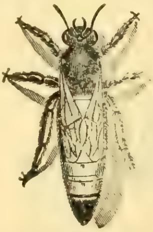
11tfdb **Port Orange, Vol. Co., Fla.**

Golden Italian Queens

Warranted purely mated, $1.00 each; six for $5.00. Our five-banded Italians are good workers, gentle and beautiful, and the queens are very prolific. All queens reared by the Doolittle method, and are almost pure yellow. We handle our best bees without smoke or veil, and can jar the hive or blow our breath on the bees without exciting them. Money-order office, Cable, Ill. 1tfdb

S. F. & I. TREGO, Swedona, Ill.

In writing to advertisers please mention this paper. 4tfdb



WESTERN BEE-KEEPERS' SUPPLY HOUSE.

ROOT'S GOODS can be had at Des Moines, Iowa, at ROOT'S PRICES. The largest supply business in the West. Established 1885. Dovetailed Hives, Sections, Foundation, Extractors, Smokers, Veils, Crates, Feeders, Clover Seeds, etc. Imported Italian Queens. Queens and Bees. Sample copy of our Bee Journal, "THE WESTERN BEE-KEEPER," and LATEST CATALOGUE mailed FREE to Bee-keepers.

JOSEPH NYSEWANDER,
Des Moines, Iowa.

EXTRA FINE QUEENS.

Now is the time to introduce a strain of Italians that will reap you large harvests even in poor seasons. Send a trial order and be convinced. Queens warranted purely mated, each, 80c; six, $4 00; doz., $7.00. Order now; pay on arrival. Safe arrival and satisfaction guaranteed. *F. B. YOCKEY,*

North Washington, West'd Co., Pa.

Please mention this paper.

---

4 BANDED ITALIAN BEES. Tested, $1.00; Untested, 60c; Selected tested, $1.25; tested queen, $2.00; untested, $1 50. Safe arrival guaranteed. **STEWART BROS.,**
Sparta, Tenn.

Queens by Return Mail.

Reared in the natural way from swarming cells. Just look at the following very low prices, and order at once.

Tested, each, $1.50; warranted purely mated, each, 80c; warranted purely mated, ½ doz., $4.50; warranted purely mated, per doz., $8.00.

All the above are reared in full stocks from my old reliable honey-gathering strains. Address

WM. W. CARY, Colerain, Mass.

Send for 40-page catalogue. Full line of Bee-keepers' Supplies and Bees at prices way down. 13tfdb

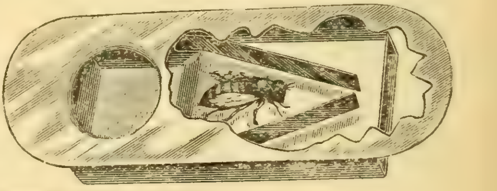
Please mention this paper.

Porter's Spring Bee-Escape.

We guarantee it to be the best escape known, and far superior to all others. If, on trial of from one to a dozen, you do not find them so, or if they do not prove satisfactory in every way, return them by mail within 90 days after receipt, and we will refund your money.

PRICES:—Each, by mail, postpaid, with full directions, 20c; per dozen, $2.25. Send for circular and testimonials. Supply dealers, send for wholesale prices.

10tfdb *R. & E. C. PORTER, LEWISTOWN, ILL.*



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GLEANINGS IN BEE CULTURE

A Journal Devoted to Bees and Honey and Home Interests.

Illustrated Semi-Monthly
Published by A. I. Root.
$1.00 per Year. Medina Ohio

Vol. XX. JULY 15, 1892. No. 14.

STRAY STRAWS

FROM DR. C. C. MILLER.

STRAWBERRIES are composed largely of water this year.

THAT "SILVER-LINING" to the clouds seems badly water-soaked as yet.

TWO WHOLE DAYS without rain—well, at least only a little shower on one of them.

FEEDING has kept the size of my apiaries a good bit larger than if I had left them to themselves.

MRS. AXTELL always had a kind heart. She gives me no little comfort by reporting a greater loss than I've had.

CHAS. DADANT, in *Revue*, gives a black eye to De Layens' theory that there's profit in letting bees make wax.

PURE BEESWAX and clean unsalted butter make an excellent substitute for creams and balms.—*Ladies' Home Journal.*

JULY 4, I remember, was the close of the honey harvest one year. This year July 4 is before the beginning—if there is to be any beginning.

YOUR HEAD'S LEVEL, Mr. Editor. We musn't think of going to Washington at any time when there isn't something else going on to bring down railroad rates.

NECTAR AND POLLEN, I have always thought, went pretty much together; but nowadays I find bees bringing in big loads of pollen, and their honey-sacs empty.

EMMA'S USING one of the improved Binghams, and it's good; no burnt fingers when you want to load up, and no need of coals dropping out from turning upside down.

FLORISTS are not like bee-keepers. You can't subscribe for the *American Florist* without some proof that you are already a florist. But bee-keepers will coax you to enter their ranks.

I WORRIED SOMEWHAT because it seemed impossible to get colonies strong enough in time for the harvest. Now I've got most of them in good shape, and I'm trying hard not to worry because the harvest doesn't come as soon as the bees are ready.

BEE CULTURE has more public encouragement in England than here. The *British Bee Journal* shows some $3000 appropriated by the government to provide free teaching in practical bee culture. How about slow Johnny Bull now, you bragging Yankees?

FOR CHAPPED HANDS or any sort of roughness, sage tea or oatmeal gruel, sweetened with honey, is good.—*Ladies' Home Journal.*

THAT MAN MCINTYRE—I feel jealous of him if he's going to win away Prof. Cook's affections from me. But then, if McIntyre is as nice as his picture looks, I can't blame the professor.

MORE AND MORE it is becoming true that women of real refinement and taste dress plainly. You can often pick out the wives of millionaires by their plain dress. A loud dress on a woman generally advertises the fact that she is dressing beyond her means.

HOW THAT PICTURE on page 502 takes me back to old times! The Murrays were two very lovable brothers—"Rob," as we always called him, so modest and quiet that you'd hardly know he was around, and James overflowing with fun—fun that was always kind.

COMB-BUILDING, Doolittle says in *Stockman*, is supposed to be done by exact measurement. The antennæ of the worker are used full length to measure the diameter of drone-cells; and when it wants to measure for a worker-cell it doubles up the end-joint of the antennæ like a jack-knife.

DO YOU WANT company and comfort in your misery? Well, here I am this 5th of July with 130 colonies (if some of them didn't die last night) left out of 289, some of them mere nuclei, and not a bee working in supers, and some hives with not a drop of honey to be seen in the brood-combs. But it might be worse.

A LITTLE ECONOMY I saw this morning amused and rather pleased me. A white cake about a foot long had a gash cut across the middle, and in the gash a wall of writing-paper erected. Then one half the cake was frosted with chocolate, and the other with plain frosting. Two kinds of cake, you see, with only one baking.

CLOVER POLLEN is coming in, when it comes in at all, in larger pellets than I ever saw before; for, usually, clover pollen comes in in small pellets. Possibly this is the explanation: Ordinarily bees working on clover get filled up with nectar before they have time to get much pollen; but when getting little or no nectar they have time to get full loads of pollen.

DICTATING to a stenographer all right the first time trying is spoken of by the editor as quite a feat on the part of father Langstroth. So it was. If any of you think it's an easy thing to do without being first hardened to it, just try sitting down and talking to an imaginary audience with no one to hear you, and a pretty girl overhearing all you say, and see if you don't feel kind o' confused like.

Drones raised from unfertilized queens, we have been taught by good authority to believe, are as good as any. Experiments made by Mr. Dragan, a Carniolan bee-keeper, throw doubt on this belief. On two different occasions he took a colony with such drones to a distance from other colonies, introduced a virgin queen, and in spite of the numbers of drones each queen turned out a drone-layer.

The wedding-tour of the young queen occurs, according to some, as early as the third day after leaving the cell, while others stoutly assert that she waits till the sixth day. Both are probably right. If only one cell is in the hive, the queen is fertilized the fifth or sixth day; while if, on account of other cells in the hive, she remains a prisoner in her cell three days she will be so many days sooner fertilized after she leaves the cell. But her real age from the egg is the same in both cases.

PROF. H. W. WILEY.

SOMETHING IN HIS DEFENSE FROM PROF. A. J. COOK.

Dear Mr. Editor:—I have had, recently, quite an extensive correspondence with Prof. H. W. Wiley; and if, as I think, he has been misunderstood, and hence unjustly denounced by bee-keepers, it is certainly none too soon to call attention to the matter, and ask that we consider before we condemn further. This is a pleasanter duty, as I am sure that bee-keepers are, almost to a man, fair, right-minded, and most desirous that every person should have his just deserts. Let me call attention to some facts that I believe will mollify the bee-keepers in respect to this able scientist, and, as I believe, most excellent man.

When Prof. Wiley wrote his *Popular Science Monthly* article, in which he stated that comb honey was extensively made and sold, he fully believed it. He had had the facts from a reliable party; and in these days of marvelous inventions it is no wonder that he was deceived. Bee-keepers knew at the time that it was utterly untrue, as the most thorough investigation has since fully confirmed. Prof. Wiley could not know this, and looked upon the matter as a very curious and interesting fact, which, as is his fashion, he clothed in such happy phrase as to add to the humor and interest of the subject. This article was widely copied, and, from the known ability and usual reliability of the author, had great influence. Bee-keepers, in attempting to sell comb honey, were repeatedly met with refusal, and the taunting explanation that it was artificial, and a fraud, and they would have none of it. Of course, bee-keepers were justly indignant, and the more so as the error continued to spread and to work its evil influence. Prof. Wiley knew nothing of this. As he writes me, he had never regarded the error as more than a harmless and comical mistake. If he had in the least appreciated the true state of the case, I am very sure he would have made all haste to retract and correct. Smarting under the injury, bee-keepers rushed into print, and, not without reason, as we have seen, commenced the denunciation with which we are all familiar. It is most unfortunate that some editor or bee-keeper had not done as we always ought to do in such cases —written a courteous, friendly letter to Prof. Wiley, explaining the matter from the bee-keepers' standpoint, then all would have been explained, all misunderstanding removed, and all unkindness and wrong avoided. The bitter denunciation led to Prof. Wiley's *Indiana Farmer* article in June, 1882. Not understanding the real state of the case, and doubtless influenced by the harsh criticisms in the bee-journals, which, from his standpoint, seemed violent and uncalled for, Prof. Wiley wrote the unfortunate "scientific pleasantry" article. He thought he was aiming his sarcasm at a causeless and morbid sensitiveness or irritability on the part of bee-keepers. It was really rasping a real wound. Bee-keepers thought that, by "scientific pleasantry," Prof. Wiley meant he wrote his statement as a joke, not as fact. Thus many excellent men thought him disingenuous, to say the least. Prof. Wiley meant to give no such impression. He believed the statement true, and thought the matter very interesting, not to say humorous, and hence the expression which gave so much offense to bee-keepers. Thus we see that Prof. Wiley was not untruthful, nor even disingenuous. Indeed, those who know Prof. Wiley know him to be a courteous gentleman, incapable of deceit or intended misrepresentation.

Since the *Indiana Farmer* letter, Prof. Wiley has made no reply. The attacks upon him were so violent, and, to his mind, so unjust and uncalled for, that he felt that it were most wise and dignified to give them no heed.

Prof. Wiley has published two Bulletins, giving analyses of honey. He also published an article in the *American Apiculturist*, where he mentioned receiving and analyzing honey received from Mr. Muth. He did not state in this last article that Mr. Muth's honey was adulterated, but that samples 14, 16, and 17, which were from Louisiana and Florida, were apparently adulterated with invert sugar. He adds that these may not have been adulterated, but may have been the result of bees gathering from or taking sucrose food. In speaking of the honeys from Mr. Muth, he says: "These honeys, obtained directly or indirectly from well-known apiarists, I have every reason to believe to be pure." In the reports, much honey, and some with Mr. Muth's labels, is pronounced adulterated. But these analyses were not made by Prof. Wiley, but by Profs. Webber, of Columbus—Ohio State University—and Scovell, of Lexington, Ky. I know both of these gentlemen well, and know them to be among the most able and capable chemists of our country. That the analyses were well made, and correct, so far as our present methods of analysis will permit, there can not be a shadow of doubt. Either the honey was adulterated, or else the methods for chemical analysis are at fault. The latter may be true. In either case we ought to be glad of the report. Mr. Muth buys his honey. Can he, buying so much, be always sure that *all* is pure? Most of the samples with his label are pronounced pure in the report. Might not occasional samples be adulterated, and Mr. Muth not know it? If so, we see there is much room for doubt. Possibly the chemists have made mistakes, owing to inability to always detect the spurious or genuine; and possibly Mr. Muth has been mistaken. We are all human—all liable to make mistakes.

Now, Mr. Editor, to the point. It is of the utmost importance that we be able to always decide correctly between the spurious and the genuine. Prof. Wiley admits that, at present, we may be unable to do so. He further expresses not only willingness but eagerness to aid the bee-keepers in every way possible. We all know that extracted honey is adulterated to an enormous degree. It is for the best good of the honey-producer and the public alike that all adulteration be surely and speedily detected, and all adulterators severely punished. That Prof. Wiley desires right and justice, appears from the following in his article in the

American Analyst, vol. viii., p. 227: "I have no desire whatever to do Mr. Muth injustice, and I am ready at any time to make amends in case I have done so." In reply to a courteous criticism by the editor of the *Analyst*, Prof. Wiley says: "You allude to this same reference as undignified, and perhaps it is so; but when I saw the enormous frauds which were practiced on the community by selling glucose as pure honey, and especially under the names of well-known apiarists, I felt that some drastic measures were necessary to correct the fault." Surely bee-keepers may well say amen to this. Prof. Wiley adds further: "I may, therefore, have sometimes indulged in language not altogether proper; but if so, I am ready to make any necessary apologies." And should not every bee-keeper unite with him in the following? "I am only too anxious to join with Mr. Muth and all others who are disposed to put an end to honey adulteration. All the bee-keepers themselves ought to join most heartily in this movement; for if the adulterated honey could be kept out of the market, the price of the pure article would be very much increased, and their business become all the more profitable."

Prof. Wiley has practically confirmed this willingness by a hearty consent to analyze, in conjunction with two other well-known chemists, all samples which I will send him. I have already sent on 33 samples by number, whose history and quality I alone know, as the samples are marked only by number. The results, I believe, will bring substantial aid to bee-men.

Now, Mr. Editor, it seems to me that all innuendoes and defamation should cease. They will do no good, and, if unjust, as they usually are, will do much harm. Let us never say more of the "Wiley lie," which, we see, was no lie—only a mistake; or of the "scientific pleasantry" article, which, as we have seen, was the result of misunderstanding, and was itself misunderstood. Prof. Wiley is strong in himself; is backed by the strong arm of the government, and is ready and willing to give to bee-keepers all possible aid. Let us show our appreciation of this offer by joining hands with him in detecting adulteration, and in banding together to secure legislation to drive this terrible evil from our midst. I am fully persuaded, that, if we rightly understand the matter, no one, who is moved by right feeling and righteous impulses, will in any way, either by written word or by word of mouth, do any thing to keep alive these old rancors and unkindnesses which make not for peace, but do every thing we can to push the unsavory past into oblivion, and to urge the spirit of help and co-operation, that together we may throttle one of the greatest evils that now confront our industry and people. A. J. COOK.

Agricultural College, Mich., July, 1892.

[Prof. Cook deserves a vote of thanks for the very kindly way in which he has succeeded in adjusting an old trouble of long standing. No matter what Prof. Wiley's past utterances respecting honey may have been, or whether some of those utterances may have been unwise, we are more than willing to bury the hatchet. Prof. Cook's very excellent article above, in his defense, as also some very pleasant letters received from Prof. Wiley himself, shows that we have misunderstood him, and proves, to our mind at least, that he has only the best interests of the bee-keepers at heart. It is a pity that some of us did not correspond with him sooner; but his long silence (too long it seems to us) to the articles in the various bee-journals which attacked him led us to believe (erroneously, as we now know), that, inasmuch as he was a high official of the government, he would not deign to notice even a private letter, and hence the continued public attack. There will be no more of it in GLEANINGS; but, on the contrary, we hope to pursue an opposite policy, for Prof. Wiley is both willing and able to do bee-keepers great service.]

BEES AND HIVES FOR THE FARMER.

L. L. LANGSTROTH CONTINUES THE SUBJECT INTRODUCED BY C. J. H. GRAVENHORST, P. 361.

I send you a copy of an article of mine published in the *Farmer's Friend*. About four years before the date of the article, I communicated the same ideas to the Farmers' Club, of Oxford, O., and a report of the same appeared in the Cincinnati *Commercial*. I have never seen any notice of either article.

Since the very interesting article of our good friend Gravenhorst (GLEANINGS, May 15, p. 361), with a cut of a straw hive admirably suited to carry out my views, I again call the attention of bee-keepers to them.

Notice particularly Mr. Gravenhorst's remark, "The top has no hole for a super, as these are not in use." For the class of bee-keepers I had reference to, the very first attempt to improve the old box or gum hive, by giving bees access to supers, was a step backward; for in taking away the surplus honey, so called, stored in these supers, often the honey absolutely needed to carry the bees through till the next harvest was taken from them, and the colony, unless fed, perished.

Dayton, O., June 30. L. L. LANGSTROTH.

[The following is the article referred to:]

While movable-frame hives have revolutionized bee-keeping in the hands of those who learn how to use them, I believe that, to the mass of farmers who have tried them, they have been an injury rather than a benefit. In those parts of our country where they have been most largely introduced, the number of farmers who keep bees has most largely decreased. At the same time, the important services which the bees perform make it very desirable that a few hives, at least, should be kept on almost every farm.

1. In unpropitious seasons they aid materially in causing the fruit-blossoms to set.

2. The Italian bees contribute materially to the fertilization of the seed in the second crop of red clover. For this reason alone it would pay our farmers who have not such bees near them to keep a few stocks of this variety. Now, how can we induce them to do it? Certainly not by recommending the use of movable-frame hives. Bee-keeping with such hives is a science, or art, and most of them have neither the time nor the disposition to learn it.

I believe that most farmers would have better success with their bees if they used only the old straw or box hives. A simple tool in the hands of one who knows how to use it will turn out much better work than an improved implement whose proper use has never been learned.

The old straw hive is the simple tool. Before the advent of the bee-moth, with such hives nearly every farmer kept bees; and as the introduction of the Italian bee has done away with all serious trouble from the moth, there is nothing to prevent them from doing so now. With these old-fashioned hives, the women and the children can do most of the work, and bee-keeping, like poultry-raising, will be their special province and profit. Aside from learning how to hive the new swarms, little knowledge is needed. After the honey-gathering is over, all the hives were carefully "hefted;" the extra light ones were condemned to be "taken up," as not having stores enough to winter; the extra heavy ones also, for the value of their honey, while a sufficient number of well-provisioned stocks were kept for seed. It were easy to show that, to allow the light stocks to die of starvation, as is now practiced by the common bee-keeper, is far more cruel than to kill them at once; but there will be no necessity of killing any bees. The skilled apiarian, who, of course, uses movable-frame hives, will be glad for the value of the condemned bees, to drive them from their combs; and with his honey-emptier to give the farmer the honey from the bees in its purest form, and leave him the empty combs to be rendered into wax.

I believe that, if the mass of our farmers could be persuaded to resume bee-keeping with the old-fashioned straw hive, there would not only be a large increase in the number of bees, but also in a short time a larger increase in the number of movable-frame hives than can be brought about in any other way. How many farmers would be asked by their smart boys and girls, who naturally take to bees: "Father, why can't we get some movable-frame hives, and do as well with them as neighbor A does?"!

It is from this class that new recruits will be constantly raised up to swell the ranks of improved bee-keepers. Let our dealers in bee-keepers' supplies profit by these hints, and I think that they will not only find large sales for straw hives, but an increased demand for their best improvements.

Being the first person to invent and introduce a practical movable hive, I feel it my duty to give these suggestions to the public, and to invite frank comment upon them.

Dayton, O., January, 1888.

THE CONGREGATING OF DRONES DENIED.

HOW TO INSERT QUEEN-CELLS.

I have noticed recently several articles in regard to the daily congregation of drones, said articles advancing the theory that queens usually repair to these congregations to be fertilized. While I undertake to differ with the experienced authors of these articles with a great deal of trepidation, yet I am so firm in the belief that they are mistaken, that I am constrained to relate my experience and observation in the matter.

I began bee-keeping as one of your A B C scholars in 1885, at which time I Italianized an apiary of about 20 hives. Of course, as all the bees around me were blacks, my bees were mostly hybrids after requeening. Since that time I have increased my apiary a little each year, raising my own queens, till now I have 60 hives, over half of which are pure Italians, and the rest high-grade hybrids. Now there are, within a mile of me, twice as many bees as I have, and they are all blacks except four hives. It seems to me, that, if queens were generally fertilized in the congregations referred to, my bees would have retrograded badly—indeed, have gone back to blacks, nearly. I have made no effort to raise the strain, except to select eggs from purest mothers to raise queen-cells from to put into new artificial swarms. I have never practiced displacing queens because they were low-grade hybrids

Speaking of queen-cells, I find it as good a way as any (and I think better) to give a nucleus a queen-cell, to just separate two center frames a little, and slip a queen-cell between them, closing the frames on it tight enough to hold it till the bees can stick it, which they will do at once, and take care of it till hatched. This may be a common practice, but it is not mentioned in the A B C, nor any other book I ever read.

The honey crop was very short in South Mississippi this year, owing to late freezes.

M. M. Evans.

Moss Point, Miss., June 21, 1892.

[It does not seem to us that your experience disproves the theory (or, perhaps, we had better say the *fact*) of drones congregating. If any thing, it rather confirms; for the majority of your colonies were hybrids. It is not at all improbable that your Italian drones were in the habit of congregating at a distance from your apiary, and this would account for the pure stock you have. Your manner of inserting queen-cells is described exactly in the A B C, under the head of Queen-rearing—see page 242, last edition. The same plan has also been described in several of the former editions. It is the best method, when used in connection with a queen-cell protector.]

PALESTINE AND TUNISIAN (OR PUNIC) BEES.

SAID TO BE BAD ROBBERS.

We extract the following, with footnote by the editors, from the *British Bee Journal*, June 16. We have not had a chance to test the robbing tendency in our Punics, or Tunisians. We shall likely give them a chance soon—perhaps sooner than we like.

This is a very busy season with us (making comb foundation still). The orange-trees are filling the air with their odor, and the bees are busy. From sunrise to sunset all is movement, diligence, and bustle. It was too warm in February, and the bloom was out ten days too soon; this generally proves a great loss, for the bees are not all quite ready. February was just as warm as March, the thermometer never going below 14° Celsius (57.20° Fahr.) before sunrise, *i. e.*, the coldest time in the twenty-four hours. At noon it only once rose to 22° C. (71.60° F.), but as a rule remained at 17° or 18° (62.60° or 64.40° F.). This equal temperature was not very conducive to the flow of nectar, and up to the 16th of March we had only 1 kilo. 500 grammes brought in, and on the 16th 2 kilos.

On account of poor health and other reasons I shall leave Palestine in May and settle in the south of France; and if you are passing Marseilles from Algiers or Tunis I should be glad to know it and call upon you. I followed your "Punic war" with interest, and have been wholly on your side of the question. I have had Tunisian bees in my apiary, and found them a *busy*, *prolific*, but a *very robbing* race. Just to mention to you one case, I had one hive of Tunisians in 1886, and several hundred Palestines. At the end of April a window of the honey-house was left open by accident without being covered by the wire gauze. In this room there were several tanks holding 500 pounds of honey each, and one happened not to be covered with the muslin. The orange-blossom was over, and the robbers made a start; but imagine my surprise when I found dead *Tunisians one inch deep*, and only a few Palestines. I should call them 99 per cent greater robbers than Palestines; at any rate, the dead were in this proportion. They are very tenacious robbers, and very difficult to send away, and contrast unfavorably with our Palestines, who will leave off robbing after an hour or two, even in the worst cases.

Ph. J. Baldensperger.

Jaffa.

We can thoroughly indorse all our correspondent says about Tunisian bees and their robbing propensities, notwithstanding what has been said to the contrary by persons interested in their sale. As none of these bees are now being imported into this country, and as it is more than twelve months since any have been sent over, it is fortunate that the few queens that came over before that time are not likely to have much contaminated our own races. We very much doubt whether there is any bee-keeper in this country who has a pure Tunisian queen; and if there happens to be such a queen she must be pretty aged. We shall have a good deal more to say about Tunisian bees now that we have returned from Tunis, but must reserve this for a special article. We hardly need tell our correspondent, that, although we made the most careful investigations, we failed to find any of the so-called Punic bees.—Eds. *B. B. J.*

THE SECRETION OF WAX BY BEES.

DE LAYENS' CONCLUSION NOT CORROBORATED AT THE LANSING APICULTURAL EXP. STATION.

The recent article of Dr. Miller in GLEANINGS, recounting the experiments of DeLayens, of France, upon the subject of wax secretion, brings before us once more this oft-debated question. I find it impossible to reconcile the results of that experiment with the recorded experiences of other apiarists. It seems that the nine colonies that built their own combs (partially at least) gathered also as much honey as the nine that were provided with combs. If the bees secrete wax whenever gathering honey, whether combs are needed or not, then this result was to be expected. Hardly any one believes this now, so that we are forced, if we acknowledge the exactness of the experiment, to one of two conclusions—either that wax is secreted at times with almost no loss to the bees, or that the building of comb sometimes leads the bees to greater exertions. This latter seems to be the conclusion arrived at by the experimenter.

Now, our experiment last summer to determine the amount of honey consumed in secreting a pound of wax, was not very conclusive. There were some elements of uncertainty, and the experiment will be repeated this summer.

Colony No. 1 was given a virgin queen and no combs.

Colony No. 2 was given a virgin queen and combs.

Colony No. 3 was given a laying queen and combs.

Colony No. 3 was used merely for a comparison of work done. The bees were fed 21 lbs. of honey in 10 days, and the wax secretion by No. 1 amounted to 11¼ oz. During the experiment No. 2 gained in weight 8 lbs. more than No. 1, so that this 8 lbs. should represent the 11¼ oz. of wax secreted. It was intended to conduct the experiment immediately after the close of the basswood harvest; but some honey was gathered by the bees at this time.

No. 2 was a heavier colony than No. 1, and gathered and consumed more honey; but it was scarcely possible to estimate this variation with any assurance of correctness. This season this experiment will be repeated with all these elements of uncertainty eliminated so far as possible.

Mr. Samuel Simmins says that, in testing this matter of wax secretion, the bees must have access to both water and pollen, and that no brood should be produced. The bees should not be confined to the hive, and should gather no other food than that supplied. I am assured that he is right; and that the above method, followed out with care at the proper time, will give nearly true results. Pollen, of course, enters into the food of bees secreting wax, so that the abundance or scarcity of this will cause different results to be obtained at different times.

DeLayens is undoubtedly right, that the practical question with this problem of wax secretion is that of money income to be derived; but if we can know how much honey is consumed on an average by the bees in the secretion of wax, we then have a fact as a basis of future work in this direction.

Thus far this season no honey to speak of has been gathered by the bees, and it now looks as if we should be compelled to feed if any experiments of this kind, depending upon the honey-flow, are to be consummated.

I hope that Mr. E. France is repeating the experiment of which he wrote in GLEANINGS last fall, with the modifications that experience taught him should be made. That bees mix from hive to hive when in rows, we all know; but the extent of this mixing when there are no landmarks to guide the bees is not generally realized. When Mr. F. places his experimental colony by itself he can be quite sure of his results. I imagine, however, that his results of last summer were about correct. I have observed that, when bees are placed under abnormal conditions, they live longer, or their functions are more active, and in various ways the common rules of their whole lives seem to be changed in the attempt to bridge the chasm that endangers the life of the colony. This shows us how strangely the mind of the bee controls its body. We, of course, have often observed this in the human family, and yet I think that the bee is not less governed by its feelings and desires than many of us.

Dr. Miller has agreed to leave to me the question of how queens go through perforated zinc. I think he has left it in rather poor hands, for I know almost nothing about it. Whether the thorax of a queen increases in size after mating is a rather delicate question. I found it impossible to measure it accurately by any mechanical means, and resorted to the practical test of the zinc itself. I placed two strips of zinc so that the opening between them could be delicately adjusted at the opening of a cage. With this I found that a young queen would make the most frantic exertions to escape, and would pass through as soon as the opening became large enough to admit her thorax. The same queen when laying would not go through exactly the same opening. She would not, however, try as hard as when a virgin, and was not as anxious to get out. My belief is, from these tests and from other observations, that the thorax of a queen is no larger after mating. The difference seems to be caused mostly by the activity of the young queens. I think that Ernest is a little mistaken in his assertion that the abdomen of a queen ever prevents her passage through zinc. Any one who has handled queens knows that the abdomen is not as hard as the thorax, and would be readily compressed to allow the queen to pass. Also, if this idea were true, would not queens sometimes be hung in the zinc with wings, legs, and thorax on one side, and abdomen on the other?

If bees are reared in contracted cells, or are supplied with too little food or heat, they are sometimes small at birth. However, they usually soon attain their normal size. It is also often true of queens. But this development after birth is not at all dependent upon their mating, and generally takes place soon after birth. But can we ever hope to get our zinc to such perfection that no virgin will ever pass? I think not; for, as long as small queens are reared, so long shall we be troubled occasionally in this way. Sometimes a poor queen will be reared in any apiary. It is impossible to avoid this.

Since Prof. Cook has so earnestly interested himself, and obtained the co-operation of the State Board of Agriculture, Prof. H. W. Wiley, and others, in testing the validity of the present methods of honey analysis, I think it is the duty of all to furnish him with samples of honey desired. I am much interested, and I am sure we shall experience a general awakening upon the subject of adulteration.

I have read carefully this last report of Dr. Wiley, and I must say I can find little to criticise in the intentions apparent. I believe that honey is mixed and sold in that state, in our cities much more generally than most of us imagine it to be. We all know, too, that this adulteration is done by wholesale packing-houses in the cities. Those who read Byron Walker's article on page 163 of March 1st GLEANINGS must realize that he tells the truth; and if so, we may well be on the war-path rather than holding back and crying "a lie!" The latter will accomplish nothing, while a course of active interest in securing good laws, and then of aggressive warfare in enforcing them, will help the market for our product, and our good name as honest producers.

If the Bee-keepers' Union would nail to its masthead the legend, "Death to adulteration," it should secure immediately a number of thousand names. Such a cause of universal interest would be worthy of this noble organization.

J. H. LARRABEE.

Ag'l College, Mich., June 28.

[We may be mistaken in regard to the perforated-zinc matter; but we feel, from some observations that we have made, that the abdomen does *help* to prevent the queen from going through. We propose to measure at the earliest opportunity the thorax of queens, laying and virgin.]

* * *

ALLEY'S LATEST SELF-HIVER.

HE THINKS HE HAS ATTAINED PERFECTION AT LAST.

After "fooling around" some little time, I've finally hit upon a perfect practical self-swarm-hiver. The cut above fully illustrates it. As stated in the June *Api.*, it is an arrangement of the drone-and-queen trap. The trap, Fig. 2, is made nearly twice as wide—that is, nearly twice as large—from end to end as those usually sold for drone-and-queen catchers. It is also provided with four tubes; and the luckless drone or queen that sallies forth to leave the hive is sure to be trapped. The trap has a metal front and back. This provides the needed ventilation to the largest colony of bees. Then, again, the entrance is so much wider than the one in the old trap that the bees have no more trouble in coming out and going in than they do in hives where no trap is used. In fact, this self-hiver is a superior drone-catcher, as no drone returns to the hive after once leaving the brood-chamber; nor are they fussing at the entrance a long time trying to escape, as in the old trap when there are many drones in a hive. Hardly does the drone go to the entrance when he discovers one of the four tubes, and, before he knows it, he is in the trap. It is the same with the queen. As surely as she leaves the hive with a swarm she is trapped.

Fig. 1 illustrates the swarmer complete, ready to catch a swarm. The box A is 18 in. long, 10½ in. wide, and 10 in. deep. This is large enough to give the largest swarm all the room it needs to cluster in, for a while at least. A larger one can be used.

Fig. 2 shows the trap, or queen-and-drone catcher. It is not attached permanently to the box. Half of the front of box A is cut off, and the trap is pushed in to fill the space, and so that the front of the latter is flush with the front (or face) of the box. It will be seen that the bottom of the metal, where the bees pass through, is depressed, so the bees enter the hive easily, and with as little delay as possible.

The trap is provided with a small swinging door, B, at one end, so that the queen can be taken or shaken out, also for removing dead drones, etc. The trap can be used on any hive for catching drones when not used as a self-hiver. The box has two covers. One is constructed of wire screen nailed to a light frame, which is used so that the inside of the box can be seen without letting the bees out. The other, a common board cover, is to keep out sun and wet, and is placed directly on the screen cover. One comb is placed in the box just far enough from the trap for a bee-space between.

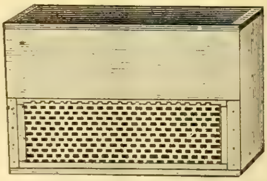


FIG. 1.—ALLEY'S LATEST SWARMER.

When a swarm issues, the queen enters the trap. The bees, after circulating about in the air for a while, return, or they may settle on some tree and hang there for a while, and then return to the hive. As soon as they reach the entrance they discover their queen (the very object they returned for), and the bees at once cluster in the box on the comb. I want it understood, that, when I say *the bees*, I mean *all* that issued with the swarm. Not even one bee will return to the brood-combs. This arrangement is a self-hiver in every sense of the word, as it catches the entire swarm.

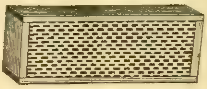


FIG. 2.—ALLEY'S LATEST TRAP.

It will be observed that the bees have but one piece of metal to pass through on their way out of and into the hive, and that is at the regular entrance; thus their passage out of and into the hive is not seriously obstructed. When a swarm has been hived automatically in one of the Perfection swarmers, it is easily and quickly transferred to the hive they are to occupy. As soon as the bees are all in the hiver, place the new hive upon the ground (or on a blanket); smoke these in the box and turn them down in front of the new hive, when they commence to run in; take the trap from the box, open the door, and shake the queen and bees out among those at the entrance of the hive. Now, isn't this an easy and interesting operation as well as a labor and bee saving method? Just think how happy a fellow can be when he leaves home in the morning, to know that, on his return, he will find his bees already in a box to be hived if they have swarmed during his absence! All he has to do on returning home is to raise the board cover of the swarm-box. If the box is full of bees, a swarm has issued. This is the only attention the bees need. His wife or attendant won't have a chance to say, when the bee-keeper returns home, "The bees have swarmed and decamped." No, sir; no bees can decamp, nor will a swarm be found hanging fifty feet in the air on the limb of some neighbor's tree, in some chimney, or in the coving of some neighbor's house.

The other morning a swarm came off just as I was going to the postoffice. They settled on the limb of a tree near by. When I returned, twenty minutes later, the bees had gone back to their old location, self-hived, and so quiet no one would have suspected that colony as the one that had just cast a swarm. Desiring to test the self-hiver again, the bees were returned to the hive from which they issued. I was away the next forenoon at an out-apiary, looking for queens to ship. On my return, my wife said a swarm of bees had been out, and settled on a tree. She had wet them down to hold them till I returned; but when she looked after them later they had left, and she had no idea where they had gone. I said that I could find them. I went to the hive having the Perfection swarmer on, and, sure enough, the bees were there all safe. The self-hiver has been thoroughly tested in my own apiary within two weeks, and I feel warranted, with the experience that I have had with it, in guaranteeing that it *will* self-hive nearly every swarm that issues.

There may be queens in a second swarm that can pass through the metal; yet, with an experience of nearly ten years with the drone-and-queen trap, I have never known either a virgin or fertilized queen to pass it.

The last five years I have used Root's metal; and while it is not as smoothly made as some other brands, no queen has passed it with me; and as the price of this metal is so reasonable, and so much less than other brands, I use and sell it, and also advise others to purchase it for queen-excluders. H. ALLEY.

Wenham, Mass., June, 1892.

—*American Apiculturist.*

IMPORTANT.

SOMETHING FROM DR. MASON IN REGARD TO THE WORLD'S FAIR.

Friend Root:—Will you please, in the next issue of GLEANINGS, urge upon "the powers that be," of all the State Bee-keepers' Associations in the United States, the necessity of calling the attention of the several State Commissions to the needs of our specialty at Chicago in 1893? It seems to me that nothing definite can be accomplished in the way of making State exhibits and applying for space until it is definitely known who will "foot the bills," and how much that "footing" amounts to in each State.

Mr. Buchanan, Chief of the Department of Agriculture, is doing all he can in the matter, and will soon send out some rules for the government of the apiarian department. In a recent letter he asked me how much space Ohio bee-keepers would want. Of course, I could not tell him, and could not tell him who could. I don't *know* that Ohio wants *any* space. Nearly a year ago the matter was presented to our State Commission, when in session at Cleveland, by Ernest R. Root, Mr. J. T. Calvert, Mr. J. B. Hains, Miss Dema Bennett, and "your humble servant;" and as yet nothing has been said as to what the commission intends to do; at least, I have heard of nothing having been done. The commission was asked to put the preparing and making of the apiarian exhibit of Ohio in the hands of the State Bee-keepers' Association, the commission giving the needed instructions. The commission did not meet again till last January; and as our State Bee-keepers' Association had met and appointed a new committee to meet with the commissioners of the World's Fair, it is possible that the necessary arrangements have been made with, and instructions received from, the commissioners.

The committee appointed at the meeting at Toledo was Charles F. Muth, J. B. Hains, and myself; and if I read the proceedings of the meeting at Cincinnati in January last aright, that committee has been superseded by a new one composed of J. B. Hains, E. R. Root, John T. Calvert, and O. A. Corey; and I have been anxiously waiting to know what the committee has done, and learn what, if any thing, I am to furnish to help make up the exhibit at Chicago.

The committee appointed by the N. A. B. K. A. at Albany have done what they could by way of urging upon the Columbian Exposition managers the appointment of a superintendent for our department, and the preparation of rules for the government of the exhibit, so that bee-keepers might know what to do the coming season.

At the request of Mr. Buchanan, Chief of the Department of Agriculture, I went to Chicago a few weeks ago, and Mr. Thos. G Newman and myself spent the day with him in visiting the exposition grounds and the building where the apiarian exhibit is to be made, and in talking over matters, and laying plans for the exhibit. It is in as nice a place as could possibly be furnished us, being about 40 feet wide and 500 feet long. It is proposed to have two glass cases, five feet wide, six feet high, and each 500 feet long, in which the honey is to be displayed.

I don't just like the glass-case arrangement. It seems to me a better plan would be to have a separate case made for each State, to be small or large, as may be needed.

I see by the *American Bee Journal* that the Wisconsin bee-keepers have secured an appropriation of $500 from their State Commissioners, with which to make their exhibit. I don't know how economical our Wisconsin bee-keepers are, or how much of a display they intend to make; but I don't think I should have much energy to put into a State exhibit unless I could have three or five times that amount to draw on. If Wisconsin should use but 25 feet in length of the glass cases for the exhibit, the case alone would cost $140, and the honey, etc., with which to make the exhibit would cost not less than $400; and where will be the "needful" for other expenses? No one will be found willing to put things in shape, get them to Chicago, and in place, and care for them "just for the fun."

Since writing the above I've again been to Chicago, at the request of Mr. Buchanan, to talk over "ways and means," etc.; and in company with Mr. Thos. G. Newman, of the *American Bee Journal*, we soon came to an agreement. Mr. Buchanan and myself had had quite a good deal of correspondence, but could not agree. After a few minutes' talk we found that we had misunderstood each other, and it took but a few minutes to come to an agreement, the plan being what I suggested nearly a year and a half ago.

June 22.—The above has been lying on my table for six weeks, and I had long ago given up sending it to you; but on looking it over this evening I thought perhaps there might be something in it of interest to some who may wish to exhibit.

Since the meeting of our State convention at Cincinnati I have felt, from the report I saw in the *American Bee Journal*, that I had no more to do in the matter than any other bee-keeper, and that those having the matter in charge should look after the exhibit; but as one interested I should like to know if any thing is being done to have Ohio bee-keepers make an exhibit.

White clover is in full bloom; colonies strong; feeding to keep from starving. A large number of full combs of last year's honey-dew come in play for feeding. Neighboring bee-keepers report the same lack of honey. A. B. MASON.

Auburndale, O.

[We confess we don't either, doctor. We didn't attend the Cincinnati convention. Who will enlighten us?]

"BEE-KINGS" IN CALIFORNIA.

EXAGGERATED STATEMENTS REGARDING CALIFORNIA HONEY CROPS; THE FOLLY OF THOSE GREAT HUNDRED-TON HONEY-TANKS AND MAMMOTH REVERSIBLE HONEY-EXTRACTORS.

We bee-keepers of Southern California have another bad season to report, owing to the very slight rainfall the past winter and spring. The loss of bees, from honey being extracted too closely last season, and neglected afterward, has been very great. I think a third of all the bees in this district have died, principally from starvation. One apiarist who last season had 1200 hives with bees in them has now some 300 with bees and 900 filled with moth-eaten combs and—experience. Another who had 400, has now 80. His loss was caused from being too good to his bees—left them full of honey, and the combs melted down on one of our pleasant summer days, when the mercury registered 120° F. in the shade. Still another, the proud possessor of 25 stocks, has now only his experience and the empty hives. Two more, with some 50 each a year ago, have less than 20. Four-fifths of all this loss has been caused by neglect. I mention none of the "bee-masters'" names, as somehow they are not at all proud of the record they have made.

Most of the California bee-keepers aspire to be "bee-kings," but which they will not be until more attention is given to the management and care of the bees, and less to the acquisition of monstrous honey-tanks and jumbo extractors. There are many apiaries here where the honey-tanks have a capacity of from twenty to forty tons—more than the apiary can fill in three seasons on an average. These jumbo extractors, which most of the bee-men think a necessity, a little reasoning will show to be a useless expense. I have alone taken in one day, with T. G. Newman's Excelsior non-reversible extractor, 1000 lbs. of honey. Four persons can take 3000 lbs. A good season here lasts eight weeks. Working six days a week, and taking out 3000 lbs. a day, we have 144,000 lbs. of honey. Is there any bee-keeper in the world who ever took that much honey from one apiary? The largest amount I have ever known taken from one apiary in one season was 80.000 lbs. That was in 1884, when the honey-flow continued for four months. In that time that amount could be taken on the small machine. But it is useless to go on; for anybody can see that $50 machines are money out of pocket, not to speak of thirty-basket

STEAM-POWER AFFAIRS,

such as one of the fraternity in Cuba uses. The climate of Cuba must be very enervating. In none of the reports from brother Osborn which I have seen does he claim a crop of 80,000 lbs. His season lasts, according to his statements, four months. Why! fie upon you! I can take single handed, with the meanest little machine ever constructed, that amount of honey in that length of time. If this last statement of mine smacks of braggadocio, remember that the habit of lying is said to be superinduced by our glorious California climate.

Reversible extractors are a good thing, as the combs do not break down so badly as in the non-reversible ones. When my extractor is worn out, I shall get a

COWAN EXTRACTOR.

I believe that the biggest crop in the biggest season that ever has been or will be taken from one apiary, can be handled easily with a $10 Cowan.

In Gleanings I have sometimes seen a statement by the editor, which reads something like this. "In California, where crops of from fifty to one hundred tons are taken in a single season," etc. Mr. Root, will you please name an individual who ever made a crop of one hundred tons of honey? Have you not been imposed upon by the formidable array of tanks? Seeing the tanks, you naturally thought they were sometimes filled. I have lived in and kept bees in Ventura and Los Angeles Counties now for nine years; and the biggest crop I ever heard of was that of Mr. Easley, who, in 1884, from two (and I am not sure but that there were three) apiaries took

EIGHTY-SEVEN TONS OF HONEY.

Two years later, from the same apiaries, Mr. W. T. Richardson, then and now the proprietor, canned up some sixty tons. Your friend Mr. Wilkin scattered bees all over Ventura County in 1884, and satisfied his ambition with a crop of fifty tons. Mr. Moffitt is reported to have made two crops of fifty tons. Mr. Mitchell, of Soledad Canyon, Los Angeles Co., has had the pleasure of some forty tons of honey as the product from his bees for a single season, and a few more I can name who have made from twenty to thirty tons. But a large majority of the would-be "bee-kings," among whom is your humble servant, have never topped ten tons.

The largest yield to the spring stock of which I know any thing definite is that of Mr. Wm. Whittaker, Piru Canyon, Ventura Co. In 1884, from some 150 hives, he made over thirty tons. Four hundred and nineteen pounds per colony is, I believe, the exact average. Mr. Nathan Shaw, also of Ventura Co., somewhere back in the seventies, averaged more, I believe, than Mr. Whittaker, but I have not the exact figures.

THE DISPOSITION OF THOSE CALIFORNIA BEES.

In the last Gleanings Rambler speaks of the propensity of bees in California to fight. I know of apiaries where the bees are nearly pure blacks, where a bee-veil, except on rare occasions, is unnecessary. The fighting apiaries are where the bee-man has made an abortive attempt to Italianize. The apiary (mentioned in same article), which Mr. Mendelson had to move, had much Cyprian blood in it. As I remember it, that apiary was located some 500 feet from the road. Those bees were so mean they would fight the stovepipe all day, and Mendelson would sit and listen for it to *squeal* as they would sometimes make him do.

I believe it was at Mr. Richardson's Simi apiary that two horses, tethered out a quarter of a mile distant from the bees, were so badly stung that one died, and the other went *crazy*, and used to chase people. Wm. G. Hewes.

Newhall, Cal., June 24.

CALIFORNIA APIARIES.

THE DISORDERED CONDITION OF SOME OF THEM; INTERESTING NOTES FROM A LEADING CALIFORNIA BEE-KEEPER.

Friend Root:—When visiting W. D. Wright, of Albany County, N. Y., in 1886, he gave me a sample wooden separator, identical with the improved kind you advertise of late. I suppose it was his own invention. He also gave me a wire spring to wedge up sections, which is a great advantage over the wooden wedge. The spring is good for narrow or broad sections, and will follow up the least shrinkage of sections and separators. Mr. W. is orderly and neat about his business, and deserves success.

No doubt you have noticed the disorder in many of our California apiaries and surroundings—weeds and brush, a harbor for vermin and destruction to bees, and an inconvenience in manipulating to the best advantage and highest profit. Hives, sections, etc., are scattered around, a harbor for rats and mice; tools, also, in disorder, exposed to the weather, and good combs exposed to the moth. One friend had a ten-inch mill from you, not used as yet. He left it out in rains and fogs. Our fogs are worse than the rains to penetrate and rust tools. But little thought is exercised for the same; and these bee-keepers, too, are men of intelligence. Again, you will find apiaries in prime condition—order on every hand, and which it is a pleasure to visit.

THE NEED OF ORDER IN THE APIARY.

It is a pleasure to me to have proper places for my tools, hives, etc., and to know where to find them without taking valuable time to hunt them, and to have all in order for immediate use. I'll allow for some disorder with some from inconveniences; but general disorder is inexcusable. I have a friend here whose disorder and waste would keep an ordinary family. His excuse would be, "I haven't any time." His time is taken up in looking around for what he wishes. The time so lost would, many times, put it in its proper place, besides resulting in the preservation of the same. When a customer wishes a certain article in a store, I wish to wait upon him with the least possible delay, by knowing where goods are. I do not expect perfection in any one. Laziness will cause disorder, or, at least, it is one cause.

Now as to the season. To begin with, many apiaries were starved out through the past winter; some were not able to feed, while others did not realize their loss until too late; consequently the amount of bees to begin the season with was small compared with past seasons. One cause of loss of bees was an unusually long cold winter and backward or very late spring, causing a greater consumption of honey. In some sections last season bees did not gather sufficient to carry them through an ordinary winter. By the time these weaker colonies were strong the season was over, the stronger being in prime condition for winter; consequently I expect a greater loss of bees next spring than we had during the past.

As to the flow of honey, the requisites are, a real wet winter and soaking late rains in spring, keeping the vegetation and sages continually growing. I have noticed that, if the sages have a check in growth, they do not produce nectar as freely; in other words, the stem gets hard, and the bloom is not as thrifty; while, apparently, the bloom seems healthy to the inexperienced. Again, we have had unusually drying coast winds, or else we should have had a fair crop of honey near the coast (where I am), from alfilaree and other small vegetation, although we seldom get any surplus from alfilaree.

Have you ever used excelsior for smoker fuel? It makes a dense smoke.

WOOD QUEEN-EXCLUDERS A FAILURE.

I made a trial of 100 wood queen-excluders last season and this. They are a failure with me, as the bees enlarge the cuts, and the queens go above; and a few, where they were cut smooth, did fairly. If hard wood were used in its construction, and the apertures cut to a bevel (><) the bees would crawl through much easier. The wood-zinc is my preference.

SANTA CRUZ ISLAND FOR QUEEN-REARING.

Since Rambler spoke of Santa Cruz Island as a good place to raise queens, I have taken a trip over there to investigate. The island at its nearest point is about 26 miles from the mainland. It is 30 miles long, 15 across. It is owned by some San Francisco parties, and they employ from 200 to 500 men annually to work upon it. They have 12 large ranch houses, all connected by telephone. They have had thousands of head of sheep upon it; and of late they are, as I was informed, changing to cattle. Some vegetation differs from that on the mainland. In all it is picturesque, and it would be a pleasure for you to visit it. I nearly forgot to mention that, while a friend and I were walking over a mountain ridge, I was surprised to find many bees at work; and, walking a short distance further, we were reminded of their presence in force, my friend making a hasty retreat, while I went to find the cave close by, which an immense swarm was working to and from, and which it was a real pleasure to witness. There were other bee-caves close by, but I did not have time to go further, as my stay was limited. I went over a small scope, but I shall soon go over the whole island, as one of the foremen has promised to show me around. I shall also borrow a Kodak of one of my friends, to take a few choice views for some of my friends on the mainland.

We had frost near me, on the second of this month, at 5 A.M., and at noon it was up to 80° in the shade. This is unusual for this section. This has been a very odd season indeed.

It will take ten tons of honey to winter my bees properly for another honey-flow in 1893.

THE ROOT BEE-TENT.

I am using your tent for inspecting bees. It is very handy. I'd suggest some material much stronger than the mosquito-bar. It is easily torn, and the bees crowd out through the ridge, for I use it also during swarming time. I set the tent over the swarm, and attend to some other swarm. When I return, the swarm is clustered at the ridge. I think I shall have a number of those tents another season. I find them convenient for other purposes. I should not wish to be without them, and shall have them in each of my apiaries. The tent is a labor-saving device. M. H. MENDELSON.

Ventura, Cal., June 11, 1892.

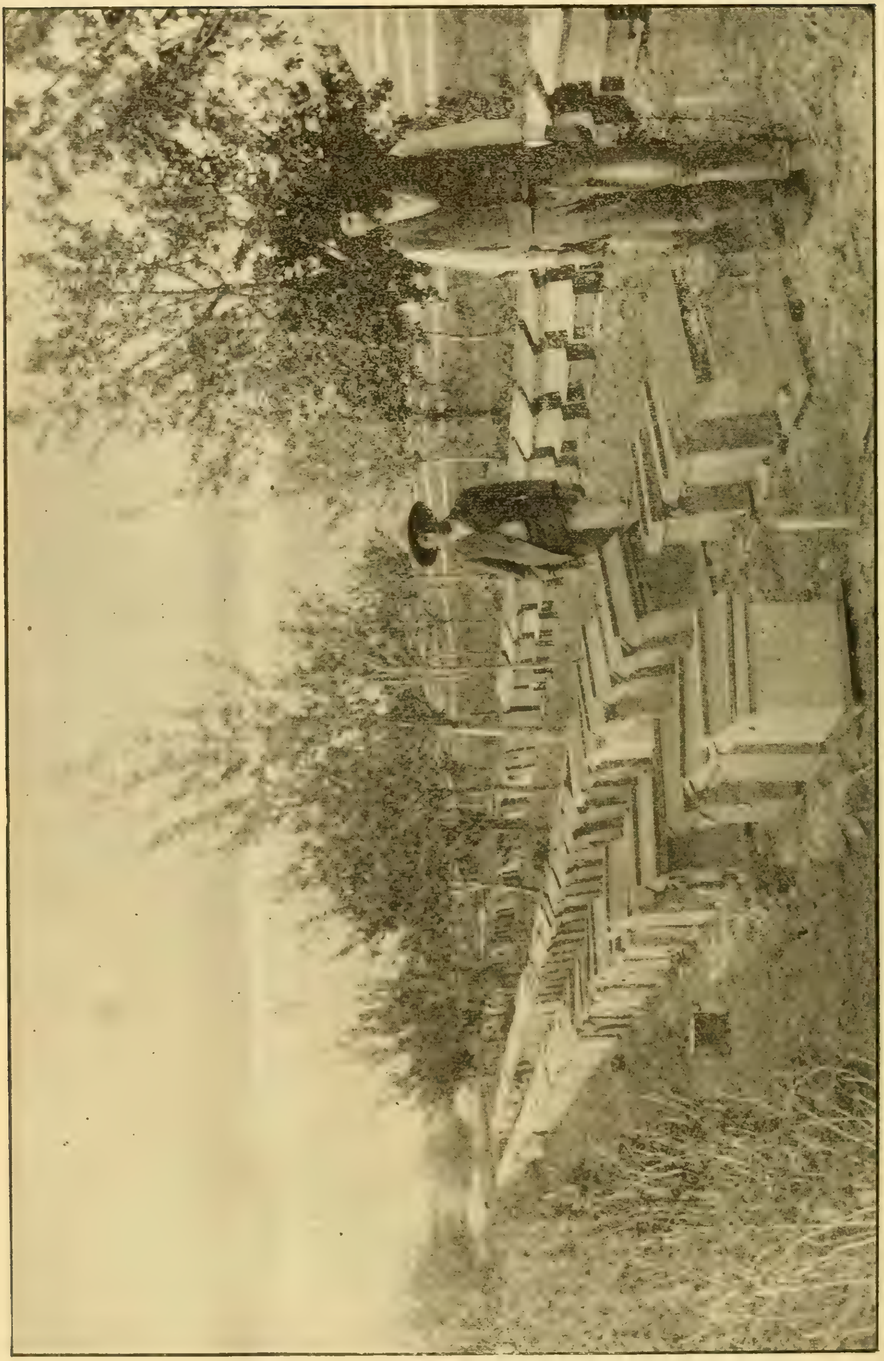
[Our readers will recognize the writer as the one whose portrait and apiary Rambler gave on pages 462 and 463. The slotted wood separators were first introduced to us, we think, somewhere in the latter '70's; but just exactly by whom, and when, we can not now say. The spring has been before suggested by one of your old California bee-keepers. We use the wooden key because it is much cheaper. We use the excelsior, or such as comes from handholes of hives, to the exclusion of all other fuel.]

RAMBLE 63.

ON THE SIDE TRACK; STRAY STRAWS AND LONG STRAWS.

The Rambler in his travels has many times been run off upon a side track to let another train pass; but as I watched the other train, all at once that would apparently stop and my train would be the one apparently going; and how nicely our train did glide without a tremor! but just as I began to rejoice at the smooth and rapid rate we were going, the trains parted, and, behold, I hadn't been moving at all. Now, there is a little moral to this. A great many people imagine they are on the train, and going like Jehu, when, in fact, they are side-tracked, and are standing stock still.

Every now and then some one will arise, and, right in the face of all the brilliant lights in



A. B. THOMAS' APIARY IN THE SALT LAKE VALLEY.

the bee-world, and the testimony of thousands not so brilliant, will advocate black bees and box hives. That man is perhaps honest, but he is side-tracked, and seems incapable of getting on to the main line where the progressive movement is.

The bee-keeper who uses little stingy starters of foundation in his brood-frames and sections, and claims that he can get just as much honey as the one using full sheets, is also standing on the side track.

The bee-keeper who will go to a convention, smile, and shake hands all around, learn all he can and not become a member of the organization, and help with the usual fee, is not only on the side track, but is on the dirt-train (exceptions, visitors from another association). On the same train is the man who gets all he can out of a bee-paper, then refuses to pay for it.

ON THE BANKS OF THE SESPE—HOW THEY HAUL STONES FROM THE QUARRY.

Some veteran bee-keepers are strongly inclined to pitch into their brethren with a pen dipped in the gall of bitterness, because of a little difference of opinion. Their train was side-tracked in the seventies. Let's keep them there.

Those far-western bee-keepers who put up their honey in bad-smelling second-hand kerosene cans are not only side-tracked, but they are trying to side-track all on the main line.

Those fellows using glucose are the ones not exactly side-tracked, but they are tampering with the switch. Look out, there! skedaddle! there's going to be a collision!

But the queerest case of this kind is where a whole train-load of bee-keepers in Canada were side-tracked, because one or two inquisitive men examined the road and found that the rails were incorporated to the ties with Illinois spikes. Toot! toot! all aboard! For the land's sake, let us keep on the main line.

Well, there! I won't say another word about side tracks, only to explain that several illustrations from the Hawkeye got side-tracked in the Home of the Honey-bees, and this Ramble of stray straws is to get them switched on to the main line again. Nothing about Rambles or GLEANINGS stands on the side track. The word is "progress."

The large picture gives you a view of an apiary in the Salt Lake Valley, Utah, and is the property of A. B. Thomas, of Springlake. The village where Mr. T. resides takes its name from a very pretty and picturesque lake near it. Mr. Thomas and his son are the parties in the apiary. The owner looks a little surprised, for the photo was taken soon after the apiary had been moved to its present location, and he was hardly ready for having pictures taken. Upon that point he was very much like all other bee-keepers—not quite slicked up enough. The apiary is worked for extracted honey, and the yield last season was about 100 lbs. per colony. The crop is mainly from sweet clover, and alfalfa, which grows in great abundance. It seems that Utah has not outgrown the use of quilts on the hives, and Mr. T. believes in using a generous amount, as will be seen. The apiary is nicely located in a fruit-orchard.

Salt Lake Valley is noted for the variety and fine quality of its fruits, and bees get a vigorous start from that source. Mr. T. has not been in the business long, but bids fair to become one of the leading honey-producers in the valley. In looking at the photo you wouldn't suspect Mr.

T. to be a Mormon. He has no more horns on his head than a shouting Methodist or a spouting Baptist. Being one of that kind who think for themselves, we can take him by the hand and call him brother, and wish him success in this life and a happy hereafter.

The white streaks across the picture, which look like irrigating-ditches, is naught but a fence of poles, used much in Utah. For the photo, and points in description, I am indebted to Mr. John C. Swaner, of Salt Lake, the secretary of the Utah Bee-keepers' Association.

The next half-tone is from a snap shot with the Hawkeye on the banks of the Sespe River, at the entrance of the Big Sespe Canyon. This rough and rugged road crosses the river and leads to a stone-quarry near those oil-wells described by the editor of Gleanings. Immense stones for building purposes are quarried in great quantities in this canyon. This was one of the immense stones that required an immense wagon and the hauling power of twelve horses. The stone, however, was too much for the wagon. One of the wheels gave out under the crushing weight. All of this heavy teaming passes Mr. McIntyre's apiary of 500 swarms, with but little trouble to the horses or men, and this shows how well trained the bees are, and there's "no harm done."

The apiary is near the entrance of two canyons—the Big and Little Sespe; and, having exclusive right to all above him, he can keep a large number of colonies in one place. By "exclusive right," I mean that then there is no available place for an apiary beyond him, and, both canyons being cut up into side canyons, like the Hagadorn, described in Ramble No. 58, gives a large field. Both of the Sespe Canyons are noted for rough and rocky scenery, and many places in them are inaccessible.

When the Rambler started out alone on an exploring tour, Mrs. McIntyre gave due caution about getting lost among the rocks. I secretly thought that was peculiar advice to give a fellow who had apparently grown beyond the care of apron-strings. But I learned that experienced old prospectors had lost their lives in these mountain fastnesses. There are many places that look very inviting for a short cut; and the traveler, upon getting down a steep precipice, finds himself in a trap. He can go no further and can not return, and either starves or (in his mad endeaver to escape) falls from a height he can not scale, and is dashed a lifeless form on the rocks below. I was therefore thankful for the caution; and that I am still in the land of the living is proof that I heeded what was so kindly told me.

SHORT STRAWS.

A manzanita stick with a broad flat end, dipped in lard, is a good thing on a bachelor's pancake griddle.

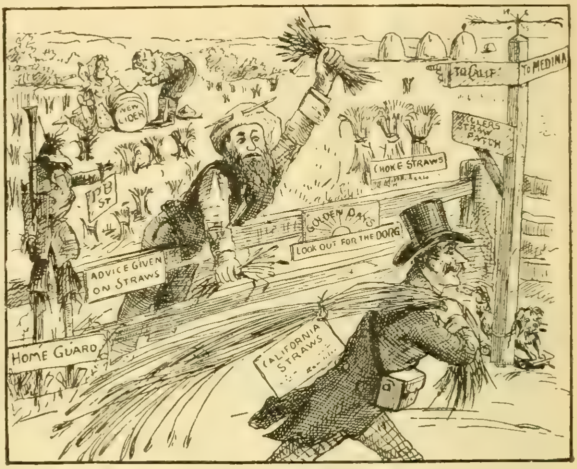
Don't try to make a postage-stamp stick by moistening it with your mouth full of dough-nut.

Mocking-birds are a smileful orchestra to listen to; but the smiles are drawn in when, every time they finish a warble, you see them catch a honey-bee.

Picture-sque. That's so; thank you. I was admiring the picture part, and didn't mind the "sque." Bro. R., did you lose the effect of the "sque" in the Sespe?

An outward application of rattlesnake oil is good to limber up the muscles—*so they say*. A rattlesnake's head coming toward you has the same effect, but a mighty sight quicker—*I know*.

Tell that man up in Minnesota, with a 200-lb. bunt sheep, to keep his off eye open; there's a 200-ton cyclone coming. He'll be landed in Lake Superior.



ILLINOIS AND CALIFORNIA STRAWS.

Dr. Tinker, give us your hand; glad you didn't get angry over that little attachment between yourself and Bro. Heddon; hope the attachment will be mutual, and strengthen between front and rear.

Another case of foul brood that stinketh unto heaven! Where, oh where? Why! among McAllister's 400.

Do you know, Bro. Root, that, every time I read Prof. Cook's articles, it seems that he is standing before me, and talking just as pleasantly as when at the Los Angeles convention?

RAMBLER.

[Friend Rambler, I think you have made some excellent points along on that side-track business, but we want to go gently. I have thought sometimes that a man might be side-tracked all his life by a little injudicious ruffling of his feathers the wrong way, when perhaps kindness and charity might induce him to move on with the rest of us. I have felt especially sad to see some very good men attend a convention and utterly refuse to put down their names or give a copper to pay the necessary expenses. But we want to go gently here. Sometimes the managers of the convention, or the people themselves, make a poor use of the funds after they have been collected. And, again, bee-keepers sometimes find it convenient to attend a convention when they have absolutely not half a dollar in their pocket to contribute. I think in that case I would borrow just that much; but may be they have good reasons for not wanting to borrow.

Your picture of the entrance of the Big Sespe Canyon is a grand one. When Mrs. Root and I took in these startling views with friend McIntyre, we thought it was too bad the readers could not be there to see it with us. But in your good picture you have got it almost to a dot; and it is through just such fearful places as these that bee-keepers and their horses go with such provoking indifference, as though it were the most natural thing in the world to be tipped and jolted until your very teeth (natural as well as artificial) seem ready to drop out.

I heartily agree with you in the point you make, that, after hearing Prof. Cook talk in his inimitable way, whenever we read one of his articles we can almost see him and hear his voice. And this is not true of him alone, but of many others, and, perhaps, I might almost say of most other energetic speakers and thinkers. And herein is one of the grand good things of conventions. After you know a man intimately, and have enjoyed a good hearty laugh with him and the rest, the bee-*papers* have a new significance. You read their writings with a new zeal and intensity that brings deeper meaning out of the words on the printed page.] A. I. R.

DIFFERENCES IN COLONIES, ETC.

WHY SOME GATHER MORE HONEY THAN OTHERS, AND HOW TO MAKE THEM EQUALIZE THE AMOUNT OF HONEY STORED.

A correspondent writes that he has noticed for some years back, that, of many colonies in the spring, which were exactly alike, as nearly as he could discover, some colonies would yield an excellent surplus, while others would give very little or none at all, and says, "Why is this? Please answer through GLEANINGS." Here is a question which used to bother me greatly, for I was formerly troubled in the same way; but of late years I have succeeded in making the most of my colonies which were worked for honey, produce nearly like results; that is, if one colony contains 40,000 bees and produces 100 lbs. of honey, I obtain about that amount from every colony containing that number of bees; while one having 20,000 bees gives a yield of about 45 lbs., for a small colony will not give quite as large a yield in proportion to its numbers as a large one. After carefully studying the matter I found that colonies I pronounced "exactly alike" on May 15th would not be so at the time the honey harvest was at its best. The trouble was, I did not have a thorough knowledge regarding the working force of my bees at all times, nor of the interior of the hive. For instance, the colony which I called the best on May 15th might become the poorest by July 10th, at which time the honey harvest arrived. This might be owing to two causes, one of which would be the failing of their queen, and the other that the colony would reach its maximum of strength some time previous to the harvest, either of which is sure to lessen the yield. I have often noticed that a colony which winters extremely well, and goes to breeding rapidly in early spring, is generally sure to produce less honey than the colony that begins to breed rapidly from forty to fifty days previous to the honey harvest. The reason seems to be, that the queen in such a colony as breeds rapidly very early ceases her prolificness to a very great extent by June 5th to 10th, this allowing the bees to put the first honey coming in into the brood-combs, rather than forcing it into the sections, as does the queen which arrives at her maximum egg-laying at this time. If this is not the case, the colony becomes demoralized by becoming too strong at this time, and so goes to loafing around, or, what is still worse, contracts the swarming mania, either of which is against a large yield of honey. If the bees become overanxious to swarm, or the queen ceases to be prolific, so that the bees get the start of her and store honey to any great extent in the brood-chamber during the first of the honey harvest, that colony will be an unprofitable one. The remedy is, to keep the queen on only a few combs early in the season, or take away a part of her brood to strengthen other colonies till the right time has come, when her extra powers will raise bees that will come at just the right time; then coax her to do her level best, and you will succeed. At this time give all the combs the hive will contain, and let her spread herself to her greatest capacity: then the colony will reach its strongest point just when the harvest is on, and thus bend every energy at storing in the sections rather than crowding the queen or loafing around. Again, the giving of a colony a large amount of surplus room to start with has a tendency to make the colony an unprofitable one, which has not a force of bees large enough to occupy the whole of the surplus apartment at once. They seem to become discouraged, and, instead of taking possession of a part of it, they will often cluster on the outside, and crowd the brood out with honey, never entering the sections at all. I usually give only section room, or room in the surplus apartment to the amount of 15 to 20 lbs., and a part of this space has combs in it left over from the previous season, thereby coaxing the bees into the sections with their first loads of new honey. In a week or so, more room is given, and so I continue to give surplus room as needed. In this way a good yield of honey is obtained from all the colonies, if the season is so any colony gives a good yield. It is the attending to the little items in bee culture that gives success.

CROOKED COMBS.

In a paper which I recently picked up I found the following words: "In the fall, after extracting the honey from the partly filled sections, and recasing the sections of empty combs (as we use no separators), the combs are not always perfect in these sections. When we find one side a little fuller than the other, we put the two full sides together, and the hollowing sides together. No matter if the full sides of the combs should touch each other, when the bees begin operations the following season they will cut right through, building out the other sides equally, and the occasional crooked ones are thus made straight." Upon reading the above I began to wonder if the writer had ever practiced the plan given, and, if so, how it could be that his experience was so much different than mine had been when trying the same plan. In every case where I ever put two combs in sections, or brood-combs even, so that they touched each other, I have found that the bees always left little bridges of comb from one comb to the other, so that, when the combs were pulled apart, the capping of one or both combs was broken, thus setting the honey to running and making the sections unsalable, unless put back on the hive for the bees to recap the cells. In so doing, the bees nearly always remove the honey out of these damaged cells, so that the whole process requires nearly half as long as it does to fill a section from the start. This causes a great waste of time to the colony, for they are thus kept fussing over a bad job instead of doing new work. My plan has been, to place such crooked combs at the top of a warm room, on a piece of canvas, until thoroughly warmed through, when the combs can be bent and straightened, to the perfect satisfaction of the operator. In this way I have a sure thing of it; and as the work is performed in the winter it is much more cheaply done than in having the bees make a "botch job" of it in the summer. G. M. DOOLITTLE.

Borodino, N. Y., July 2.

[Our observation at the Shane out-apiary with reference to bulged combs was just the same as yours. They would build bracers across; and where the two combs were separated the combs were uncapped and honey set to running. Theoretically it ought to work very nicely, but the bees didn't propose to confirm our theory.]

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

WHAT PROF. COOK THINKS OF THAT HALF-TONE GROUP ON PAGE 503, JULY 1.

Dear Mr. Editor:—May I congratulate you on that excellent photographic reproduction of the group that sat for their pictures at the Los Angeles convention last January? It is rare to see even an original photograph where each person shows so distinctly. How is it that all look so pleased and amiable? Of course, we had just had our dinner, and were having a superb time at the convention. That I should be in good spirits between two such royal good fellows as brothers McIntyre and Hunt, is not strange. Mrs. Cook, Bert, and I visited the latter at his home in that incomparably beautiful Redlands, where we got better acquainted with him and his delightful wife; and as I read your own and Rambler's descriptions I regret that we had not gone up to Ventura Co. and greeted President McIntyre under his own vine and pepper-tree; looked upon the beautiful country, and bathed in the springs. It is easy to see why Rambler is happy. He couldn't help it, sandwiched in as he was. Put Rambler between two nice ladies, and you may always count on one satisfied person; and I say, "Good for Rambler." Perhaps the best reason of all was, that we were all of one accord, and were piloted by such a grand fellow as G. W. Broadbeck. It was a grand company. A. J. Cook.

Agricultural College, Mich., July 5.

ANOTHER METHOD OF PRESERVING COMBS.

Many bee-keepers like myself have not a suitable cellar to hang up our empty combs in, as represented in last Gleanings. The way I care for them is as follows: I use the Bristol hive. I put a sheet of tarred paper, one inch larger than the top or bottom of the brood-box, or floor of the honey-house; set a brood-box on it, and fill it with combs, and then another sheet of paper, and then a brood-box of combs, and so on, and on the upper brood-box put a honey-board to hold the paper down tight to the brood-box. The above is for combs I know are free from moths, or have been exposed to a temperature of zero—combs, as I bring them in from the yard, that are liable to have some moth-eggs in. I put only 8 combs in a brood-box 1½ in. apart, and then look them over in about a week; and if I find any moths in the combs I put them into some of the hives for the bees to care for, and clean them out. Should a moth chance to hatch in any of the combs between the tarred paper, it can not get out. I have combs I have thus taken care of for three years that I have not looked at except the first year, to see that the tarred paper would preserve them, packed in brood-boxes, from mice, moths, bugs, dust, and ants, till I want to use them. H. B. Isham.

New Haven, Vt., June 22.

GOOD PROSPECTS FOR FLORIDA; OVER 1200 COLONIES IN ONE LOCALITY.

So far as I can learn, bees have done quite well in Florida so far this season. Black mangrove is just coming into bloom, and gives promise of a full yield. Over 1200 colonies are now collected in a space about two miles wide by six miles long, nearly half of them having been moved in from outside localities for the mangrove season only. O. O. Poppleton.

Hawks Park, Fla., June 23.

[We hope you will give us further particulars.]

SWEET CLOVER AS A FODDER; WHEN TO SOW AND WHEN TO CUT, ETC.

I should like to be enlightened upon the following points:

1. How and when to plant sweet clover.
2. How and when to cure it.
3. How and in what quantity to feed it.
4. Will stock, especially sheep, thrive upon it, or eat it at all?
5. What per acre ought it to yield as hay upon comparatively poor land?
6. Has it any virtue as a soiling plant, for enriching sandy land?

This portion of Nebraska will have to find some new fodder plant, or revert back to grazing land—the ranch in turn replace the farm. Wild hay is becoming scarce. It requires too many acres to produce a little fodder. Millet requires planting every year, and, besides, exhausts the soil. That fodder is good, but requires great care and experience in feeding. Red clover and timothy have been tried, but with indifferent success. White clover and blue grass catch easily, and do well for pasture, but do not grow rank enough to make a meadow.

Bee-keeping will suceeed and follow the introduction of the white and sweet clovers, but not till then. J. S. Dart.

Orchard, Neb., June 25.

[Sweet clover is not a success with us for fodder or feed at all, although stock will eat it to some extent if cut at just the right time. Neither does it succeed with us under cultivation nearly as well as it does on barren hillsides and roadsides. It would yield an immense quantity of hay, or a sort of hay, if we could get a good stand and have it cut exactly the right time. I am quite certain it would be very valuable as a soiling plant if we could secure a good stand of it as we do of other clover. Some of the bee-friends around Salt Lake can answer all of your questions for their locality, for it is really a desert plant, and will grow through dry seasons when almost every thing else is killed out by long drouth.] A. I. R.

A GOOD REPORT; ARE FIVE-BANDED BEES GOOD WORKERS?

Bees are just booming. I hived a swarm May 31st on 10 L. frames, with 4-inch starters. At this date the body of the hive is so "full it can't get no fuller," and I have taken off one crate of 28 sections 4¼x4¼x1⅞, of the finest honey I have handled in 30 years. The bees are "low-down hybrids" at that. Please let me know what your five-banded bees are doing. My bees are working on red raspberry.

Rev. James Andrews.

Red House, N. Y., June 20.

[See editorial column.]

BEES BOOMING ON HONEY.

June has been a grand month in Northern Michigan for bees. The increase has been surprising, and white-clover honey is coming in fast, of which I am now extracting. At this time last year we had no swarms and no honey; now I have two or three a day, and one day five from 46 colonies, spring count.

Chef, Mich., June 27. Walter Harmer.

MRS. HARRISON'S CROP.

Unite with me in singing "Praise God, from whom all blessings flow," for we are removing cases of white-clover honey.

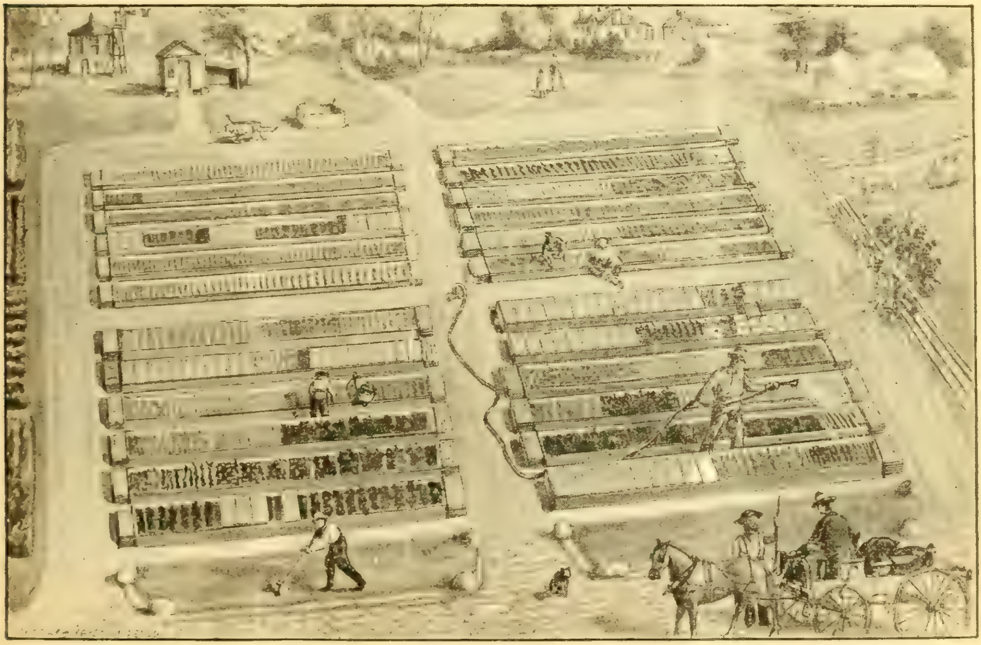
Peoria, Ill., July 9. Mrs. L. Harrison.

HIGH-PRESSURE GARDENING.

BY A. I. ROOT.

THAT QUARTER-ACRE FARM.

Of course, the length of the beds and the arrangement of the paths and streets will depend much on the shape of the piece of ground you may be able to get hold of. The plan below is for a piece of ground with about 100 feet front. If you have more than 100 feet front, make your beds shorter — say for ten sash, and have three lengths of them: if less than 100 feet, modify it in a similar way. The hose attached to the hydrant should be of sufficient length to reach all of the four corners. It ought also to have a coupling, or even two couplings, so that one length may be unscrewed and laid aside when working near the center. The amount of cloth that may be used in place of glass will depend upon your locality, and also upon the kind of crops you raise, and the season of the year you wish to put them on the market. If you are going to raise stuff all winter, say in our locality, you should have sash enough to cover perhaps a half of the beds. The other half may be covered with cloth; and as the season advances, cloth may take the place of glass, as it is much less work to handle. By putting up a temporary ridge-pole between any two of the beds, a cloth covering in the form of a tent may be put over them. This had better be arranged on the north side of the garden, so its shade will not come over any beds behind it. This tent-like covering will be very handy to work under when it rains, for the very best time in the world to do transplanting is during a summer shower; and hands that might otherwise be out of a job can work under this tent. Spinach, and other hardy plants of a like nature, will need no more covering, even during the most severe weather, than the cloth.



ARRANGEMENT OF BEDS FOR ONE-FOURTH ACRE OF GROUND, FOR GARDENING UNDER GLASS.

That we may talk about this little plantation more understandingly, I give you a picture of it.

The cut, as you may surmise, is an *ideal* picture. I have never yet had this amount under glass in just the way it is pictured. It is, however, as I should recommend it if circumstances were convenient. The above arrangement makes a square plot of the whole. There are 24 beds, as explained heretofore. The hydrant in the middle has sufficient hose attached to reach each of the four corners. You will notice in the cut a man sprinkling one of the corners most remote from the hydrant. The streets running through at right angles are wide enough for a wagon, even when the sash are off from the beds. The hose is to be unscrewed and laid to one side when it is necessary to pass through the middle. As immense quantities of manure are used in these beds, even if heated by steam, it is quite important to have these wagon-roads. The windmill and tank on the hill are supposed to supply the water. In the drawing, a little bit of lawn is shown between the walk and the street. I suppose there would be no objection to using this little bit of lawn for plants if desired; and it would make an excellent place for some handsome plants, to advertise the business. When a load of produce is ready to go to market, it is driven to where you see the dog sitting. The hose is then handed to the driver, and the whole contents of the wagon can be showered in a very few minutes. By the way, a special wagon is much the handiest for marketing these products. We will consider this further on. Now, this picture is, as I have said, somewhat of an ideal—that is, it shows what I recommend. Our own plant-beds occupy a little less than a quarter of an acre; but as we have a frontage on the street of about 225 feet, instead of 100, we have it in an oblong form instead of square. The second picture gives you a glimpse of our real plant-garden.

In the cut you will notice three rows of beds. Since we have had a view taken, another has been added, and so there are now four rows of beds; and as there are five beds in each row, we have 20 beds in all. The most of them are long enough to contain 14 sash each, like the ones in the former picture. We also have three hydrants instead of one. This is quite convenient, for it enables us to use a shorter length of hose. Those who have used a piece of hose even 50 feet long have discovered that it is laborious and unwieldy; and unless great care is taken to prevent the hose from kinking, it sustains permanent injury.

The first bed on the right contained Wakefield cabbage-plants at the time the view was taken; the one back of it, the Grand Rapids lettuce I have written you about; the one back of that, Flat Dutch cabbage-plants. On the left of the picture we have more lettuce. Back of it, where you see the handle of the spade, is still another bed of lettuce; still further back, where you see one of the men setting out plants, is a bed of onions that wintered over. They had no protection at all except a little straw. They were not winter onions either, but White Victorias. Right back of the watering-pot is a square piece of board with a handle in the center. This is used a great deal in firming the ground, and in leveling it off, just before putting in plants or seeds. This is a very handy tool, not only improving the looks of the surface of the soil, but making both plants and seeds do better for firming. The first bed on the left was made with strips of stone flagging. Although this stone is more durable than wood, it conducts frost with more facility, therefore we use, at present, only wood. We shall give a description of the way in which the beds are made, a little further on. The third picture (see next page) is taken from the top of our factory, and a little further down the street.

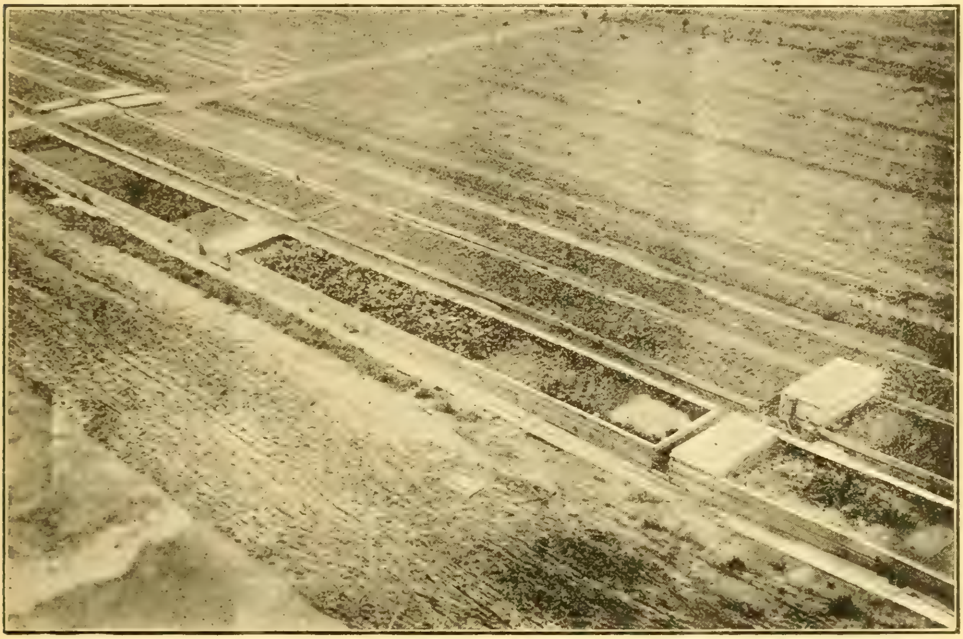
In this cut you will notice the passage between the beds is much narrower; for when the sash are off there is a space of only 16 inches for the workmen to pass through. We once tried working without any openings; but it was not only fatiguing to step over the bed, but the soft soil was injured; and the bed, and sometimes the plants, were made to look very untidy; therefore we cut passages as above. When the beds are all uncovered, the piles of sash rise only about two feet above the beds, as I have explained. As this first bed is pretty well down in the ditch by the roadside, a cheap plank walk has been laid for the convenience of the men in handling the sash. The bed full of foliage in the center of the picture contains at one end that big crop of beets I have told you about; at the other end are some cucumbers with the second or third leaves on; and still further along some Dwarf Champion tomatoes two or three inches high. The white spot at the end of the bed is white sand put over the sweet potatoes. A barrel of sweet potatoes fills just about two sash. From these two sash we have sold sweet-potato plants to the amount of at least $10 or $15, and they occupied the ground only from 60 to 75 days. At the extreme left of the bed described you see rows of Prizetaker onion-plants. Just beyond the central bed is one of wax beans. It took a great deal of handling of sash to save them from frost, and they got pretty well scorched as it was. Right back of them is a crop of Early Ohio potatoes that I expect to yield at the rate of 1000 bushels per acre. As you know, the Early Ohio is not a large yielder. At the extreme right of the picture, near the hydrant (said hydrant being close to the pile of sash), you can get a glimpse of the result of one line of the steam-pipes. It runs right under all three of the beds, and goes away back in the garden. Every thing under glass and in the open air over this steam-pipe, and for five or six feet on each side, shows a very marked luxuriance. Just back of the pile of sash, near the hydrant, you can get a little glimpse of what

A GLIMPSE OF OUR OWN PLOT OF GROUND FOR GARDENING UNDER GLASS.

it does in a bed of radishes. See the luxuriant foliage right over the pipe; and at the same time, said steam pipe is only four-inch tile laid about 18 inches under the surface of the ground. Exhaust steam from one of our little engines goes through this tile only in the day time; but even now at the present date, July 1, when no steam has been through the tile for more than a month, every thing grows with marked luxuriance over this tile. Prof. Green said, in a recent visit to us, that the action of the steam resulted, he thought without question, in assisting to disintegrate the soil and liberate the nitrates. I am hoping to see, ere long, the whole quarter-acre warmed by steam in this way.

SELLING YOUR PRODUCE.

The gardener who raises his stuff, and especially the early stuff that he secures by working with glass, is surely entitled to all his produce will bring. If anybody is able and willing to pay him a dollar a quart for his strawberries forced under glass, it is perfectly right and proper that he should take it. Now, right here is where a part of the trouble comes in with those who raise vegetables and small fruits. They sell them for a mere song, comparatively, when the real state of the market warrants a good price. Let me illustrate. A week ago a young farmer and his wife drove into town with half a bushel of green gooseberries. They went to all of the groceries, but could not get an offer for them. Finally they came to me, knowing that we raise small fruits considerably. They were evidently not schemers in selling goods—at least the wife was not, for she spoke something like this:



ANOTHER VIEW OF GARDENING UNDER GLASS.

"Mr. Root, won't you please take these gooseberries off our hands at some price? We have been all over town with them, and they are afraid to buy them. Our bushes are so full that we were afraid they could not well ripen, so we got these by taking off a part of them."

I could not help smiling at her simplicity in offering to almost *give* the goods away before she had sounded the purchaser a little; and I was forced to smile again at her simplicity; for, before I had time to make any reply whatever, she went on something as follows:

"We will take it all out in trade, Mr. Root, and I do hope you will give us something for them so we shall not have to take them back home. I really should not know what to do with so many."

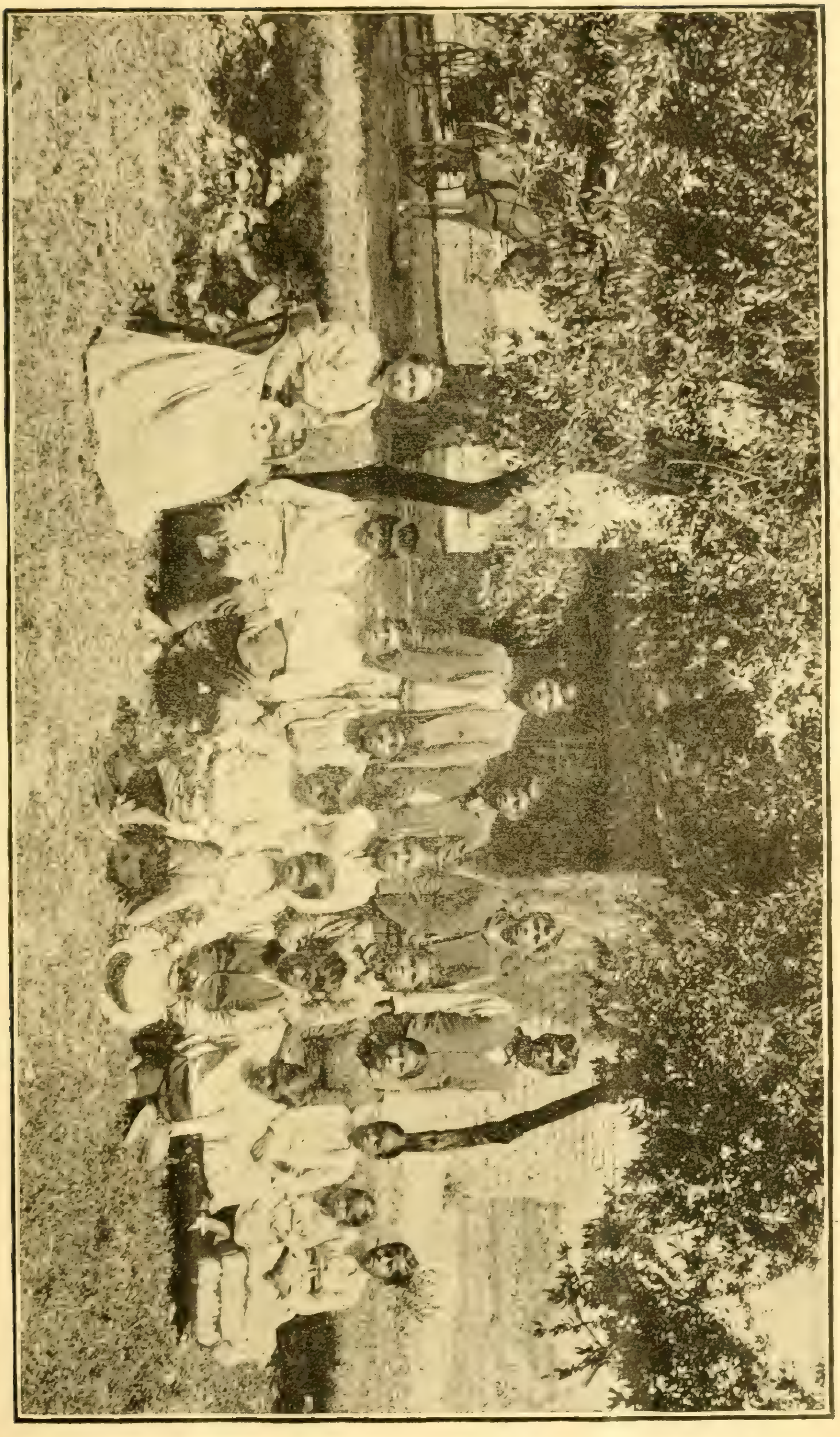
When she first took them out of the buggy and showed them to me I meditated giving her something like 6 or 7 cents a quart for them; but her discouragement at her want of finding a buyer actually infected me a little, for I began to think that nobody wanted *green* gooseberries; but as fruit was very scarce, I could not quite understand it either. Now, there is a moral right here: The seller may easily spoil the faith of the would-be purchaser if he is unwise in trying to dispose of his crop. Of course, he should have something good. These gooseberries were very fine, and had been carefully picked and sorted over. To be on the safe side I finally gave 4 cts. a quart for the lot. Now, here comes in the importance of a daily wagon in place of a grocery store or any thing of the sort, especially for small towns. The boys soon drove up with the wagon, and I told them to start the gooseberries at 5 cents. How do you think it turned out? Why, the first purchaser took the whole lot. The next day she sent for another similar lot, to be sent her by express. Then somebody who heard of it wanted another lot at the same price; and the orders came so thick and fast that I was obliged to make an advance from 5 up to 8 cents. Had I not done so, every gooseberry would have been taken from our whole plantation before it was anywhere near ripe. This transaction indicates bungling work. The grocers made the first bungle in refusing to buy the gooseberries of this young man and woman. Then *she* bungled by letting me know that she was afraid that nobody wanted them at any price. Then *I* bungled still worse by letting the report from the grocers influence my better judgment. As our bushes were also overloaded, I sold three lots at 5 cents a quart, and then found that the real value of the product—that is, letting supply and demand regulate the price—was about 8 cents a quart, or 60 cents a peck; and they are going at this price fully as fast as I want to see them go. Why, if any of us had looked at the daily quotations in the papers, in the city of Cleveland, we should have found green gooseberries worth $2.00 at wholesale. Now, the price we get, $2.40 per bushel, is a very moderate profit indeed for such a class of goods. The same thing is to be seen daily in almost all sorts of garden produce. For instance, we are getting a cent an ounce for early cucumbers and crookneck squash this first day of July. But there is a little moral in regard to this. The man who drives the wagon told me that it did not please well to tell customers that cucumbers, squashes, and wax beans were *a cent an ounce.* A better way is to put them up in, say, 10-cent packages—10 ounces, of course, making a package. If a customer is shown some nice squashes or cucumbers, and told that the lot is worth 10 cents, he will buy right along. But experience has shown that it is not well to talk ounces or pounds to him. Weighing seems to be the only fair way of treating all alike; but the weighing is a matter that the seller usually keeps to himself. Of course, every little while somebody thinks we give only a very small lot for a dime; but the seller can say to him truthfully, "My friend, at this season of the year this sort of stuff must be that which has been started under glass; and the very late and frequent frosts of last spring necessitated an unusual amount of handling of sashes. We succeeded in this way in getting these nice goods when no one else has any, as you see. Is it any thing more than fair that we should have something for our labor?" Explanations like these make a transaction pleasant that otherwise would only awaken hard feelings, and may be complaining remarks. With the aid of such a garden as I have been trying to describe, we are independent of the weather. We produce crops when nobody else has any. We have no opposition—at least, not in our town; and stuff sent in from the cities can not compare with ours, as I have explained to you; therefore it is our right and privilege to have good pay for nice goods. We first started wax beans, raised under glass, at 10 cents a quart. After the demand had been greater than the supply for almost a week, I suggested that we could get 15 cents a quart just as well, and the supply is still less (July 12) than the demand.

NOTES OF TRAVEL

FROM A. I. ROOT.

THE INDIAN SCHOOL.

All along our trip the native Indians were an object of most intense interest, both to my wife and to myself; and our frequent inquiries in regard to what had been done toward educating, civilizing, and Christianizing these dusky brothers and sisters often brought out the remark, "Why, you should visit the Indian school." An opportunity, however, had not presented itself until we were along as far as the San Jacinto Valley; and then Mrs. Root insisted that we must visit the schools, even if we did not visit any thing else. We frequently saw the Indians on the streets as they came to town. We were told that many of them could read and write fairly. Quite a few owned property, and did more or less in the way of farming. Finally a message came one morning, saying that we were invited to call on some bee-friends who lived quite near the Indian reservation; and on this reservation was the Indian village of Saboba, the very same that is made prominent in the story of "Ramona." Our new young friend Morris had a span of colts and a buggy waiting to take us to his father's home. Young Morris is very fond of horses, and I heard it intimated that he loves *fast* horses a little better than any other kind. If that is true, I hope he will use the fast horses as one of God's gifts, and by no means get to be what is sometimes called a "fast" boy. Young Morris gave us a great amount of information during our visit. He knew pretty much all about the country, and a great deal about the Indians. As we passed beautiful fruit farms and fruit-gardens, some of them had sustained in the recent frost but little if any damage. At other points, not half a mile away, the damage was considerable, and it was a question whether the lemons and oranges would all recover. "*There* is an orchard that was pretty badly *paralyzed*," said friend Morris; and it soon became apparent that "paralyzed" was one of his favorite words. Some of the Indians had a fashion of borrowing farming-implements, and, like some of their white brethren, they did not always remember to bring them back. Some of Mr. Morris' tools were now and then missing in the same way; and as we drove into Saboba he began looking about to see if he could not catch a glimpse of some of their lost tools. "If I find the chap that took them, *he* will just get *paralyzed*, sure," was announced as the cheerful prospect awaiting the delinquents. The colts that he drove did not always understand exactly the program, and, perhaps, were a little inquisitive, as colts often are, as to *where* we were going, and *what* was going to be done, when friend Morris straightened them up with a gentle tap of the lash as an admonition to attend to their business. I suggested that he should remember that they were only *colts*, and make allowances. He said that was all very well, but added, "I want them to understand that, when I am driving, they are to attend to business, and to remember that, if they do not, they will get *paralyzed* right on the spot, sure." When I suggested that perhaps the schoolma'am might not care to see us intrude upon the lessons in that sort of way, he remarked, with a comical expression, "Oh! the schoolma'am is a particular friend of mine; *she* will always be glad to see *me*, you may be sure." He reined his horses up beside the door, and tied them to one of the trees you see in the picture (oh! by the way, I forgot to tell you there *is* a picture; and don't you think it is a good one too?—many thanks to our friend Murray, whose acquaintance we made in our last issue). These trees are the cottonwoods I am going to tell you something about before we leave San Jacinto. Well, after the horses were fastened, and before we had time to rap at the door, the schoolma'am, whom you see in the easy chair, welcomed us smilingly, especially friend Morris; and I fell to wondering whether the influence of the friendship of that good woman might not help to hold our young friend steady and level as he progresses from boyhood to manhood. The juvenile part of the school was out at recess when we came up. In their plays they are very much like white children, only they seem to have a little



THE INDIAN SCHOOL AT SABOBA, CALIFORNIA.

more love for outdoor air, or, rather, more preference to being barefooted and bareheaded, and their sport seemed to be with veritable bows and arrows, true to nature and instinct. If the girls can get a bright-colored handkerchief to tie over their heads, or a thin shawl, with glaring bright colors, to throw over their shoulders, then they are content to be clothed—at least to this extent.

Here is a point, perhaps, which should be emphasized a little more. The Indians are expert hop-pickers and berry-pickers, and, in fact, they are adepts in every thing in that line. You see, gathering wild fruits and berries is a part of their earliest experience, and one of the principal ways in which they obtain a subsistence. Well, now, this love of finery is so strong that the average Indian will work through a whole hop-picking season, doing a tremendous sight of hard work; and when he is through he will take the whole of his earnings and pay it out for a single blanket, providing the colors of it are *bright* enough. In fact, he won't save out even a nickel to buy him a supper, even though the hop-picking season is over, and he does not know when he will have a chance of earning another cent. Of course, he wants a blanket that will take the shine from any thing else owned in the whole tribe; and then he will parade the streets, and enjoy the attention he receives from everybody, right and left. When I say *he* I do not mean it is the men-folks alone that are guilty of this weakness. A nice-looking young squaw is just as fond of attracting admiring glances as—suppose we say any of her white sisters. Her white sister has a little more modesty and decorum about it; but is it any thing so very strange that this untaught child of the forest should show this trait (or better, perhaps, weakness)? Oh for some good Christian woman, or man either, to look after these children, to protect them, to watch over them, and lead them to something better, purer, and a thousand times more satisfactory in every way, than any thing that can be got out of beads or shawls or handkerchiefs! In the picture you will see a little chap with a ring in one of his ears. Where they can not get two earrings they do the best they can with one; and I have been led to believe they sometimes divide, where there is not enough to go around. When recess was over, the schoolma'am seemed to have some little trouble about getting her flock back inside of the schoolhouse door.

I did not know but friend Morris and the rest of us had "paralyzed" them a little into being even *more* bashful than usual. Finally, however, they were all brought in—even the little chick who sits between her two sisters, on the right of the picture. From their looks I feared they were not going to be very ready with their lessons; but imagine my surprise when they answered promptly, spoke more distinctly, and perhaps more correctly, than any of our Yankee schoolchildren. You go into a Yankee school, and you hear more or less of the Yankee nasal twang and flatness to many of the words. The Indian children, when they dropped their mother tongue, seemed to adopt pure, sharp-cut, clear English. I was more astonished to hear them recite in geography. The hard Indian names, that bother almost every one to pronounce, seemed to be at their tongues' ends. And why should they not? By the way, are they having due credit for having given *beautiful* names to almost all the lakes, rivers, and towns, of our whole nation? In answer to my many questions, the teacher showed us some of their compositions; and Mrs. Root said she never wanted any thing much more in her life than some of the compositions written by those Indian boys and girls. But when the teacher remarked that all the best had been carried off by visitors, we hardly had the cheek to ask for more of them.

I suppose you know that a good many people have given the Indians a rather hard name. They call them shiftless, dishonest, and thievish; and I have become almost discouraged in trying to plead charity for these friends of ours who possessed our land long before *we* knew there *was* such a land.

Another thing impressed me, and I hope no one will feel hurt if I speak out plainly. Christian people, and educated and intelligent people as a rule, spoke hopefully of the work among the Indians. Non-professors of religion, especially those who made light of Christianity, seemed to think the Indians and the Chinese ought to be pushed back until they finally reach the jumping-off place, and then they thought they ought to be pushed clear off out of the way. Some professors of religion talked a good deal in the same way, but they were usually backslidden spiritually. A faith in God is surely conducive to hope in these lower races.

One reason why I wanted this picture engraved for GLEANINGS was, that you might look into the faces of these children, and catch the inspiration that such a picture always gives me. A single glance at that teacher's face shows hope and love and faith. Yes, come to think of it, it shows *faith, hope, charity;* and her pupils, especially the older ones, are fast coming to imitate her. I have been told that she, too, has some Indian blood in her veins. If it be true, I hope she is proud of it. I am sure I should be if I were in her place; and if any one suggests by word, thought, or action, that she is any less to be respected on that account, may God forgive him, and may his Holy Spirit teach such a one the error and the wrong he is doing. My friend, as you look upon the picture before us, can you imagine any more noble calling than to be teacher in that humble little adobe schoolhouse, and to be leading these precious children on the way from earth to heaven? As I look again on their faces, even in the picture, that little prayer wells up anew, "Lord, help!" and may the Lord in real truth help us all to remember the sacred responsibility that rests upon us as we take possession of this fair land of America, and subdue it to our use; and may he help us to remember these children of the forest, and their children's children; for if they have vicious propensities, so have we. If they are inclined to be selfish and indolent, so are we. And, dear friend, dare you undertake to say that you and I would not have been *heathen* and *savages* too, had it not been for the influences of civilization and Christianity round about us? Somebody has said that we are all *born* savages; and that, but for the influences of Christ's redeeming blood, we should all be savages *still*. The responsibility, the entire work of making us men and women in the image of God, rests upon the careful teaching and manipulation of the little minds in their tender years. Some of those girls, and I hope boys too, will grow up to be teachers like the teacher who sits in the chair. May God strengthen her for her work, and in a like manner strengthen the great army of teachers throughout our land, especially the teachers who are doing missionary work.

And now if I have taught you to love these children, and to love their teacher, by this picture and my short talk, I shall feel happy. Some one may whisper, that I do not know these people. Well, in one sense I am glad I do not. I do not want to know the bad there is about them. I want to know only the good. I thank Heaven I *do* know there are susceptibilities for good in the face of every one of them;

and I do not doubt at all that, if we come to follow their histories through life, the time might come when any of us might be proud to make the acquaintance of some who are gathered there. God bless the teachers, and God bless the work!

OURSELVES AND OUR NEIGHBORS.

Five of you shall chase a hundred, and a hundred of you shall put ten thousand to flight.—LEV. 26 : 8.

This is strong language—the language of our text—is it not? And what does it mean? If you go back to the beginning of the chapter, it seems very clear that it is those who keep God's *sabbaths*, and who walk in his *statutes* and keep his *commands*. In fact, this is a chapter of promises to those who obey. In other words, we are told—nay, have the promise in God's holy word—that five true Christians shall chase a hundred unbelievers, and so on; therefore in this coming World's Exposition just before us, there will not be any difficulty at all about the matter of having the Exposition closed on Sunday if *Christians* really *want* it closed. Why, suppose the enemies of righteousness and godliness do outnumber us. The Bible tells us that a hundred shall put *ten thousand* to flight; that is, a hundred faithful devoted Christians. Some of you are perhaps ready to laugh in derision at such an idea. But, dear friends, I believe the Bible statement. Furthermore, I hope you may be induced to believe it too, if you who profess to be followers of Christ can work with Christian weapons and nothing more. Then, what are Christian weapons? Well, I can not not tell you exactly what sort of weapons to use under all sorts of circumstances; but perhaps I can help a little by some suggestions. This I do believe most firmly—that, if we are constantly seeking the guidance of the Holy Spirit, we shall not go very far astray. At a recent Ohio State Endeavor convention held in our neighboring city of Akron, there was a movement started to get names or pledges of those who would refuse to attend the Exposition if it were open on Sunday, or if intoxicating liquors were sold on the ground. The matter has troubled me somewhat. It does not trouble me because I think that Christian people ought not to go to such a place where these things are countenanced, but it troubles me to know what is the wisest and best way to bring about what we desire. I once heard a very earnest Christian man—yes, an intelligent man too—say he would not go to the Exposition if it were *open* on Sunday. His neighbor, who is an unbeliever, retorted instantly that *he* would not go if they *closed* on Sunday. It gave me a sort of feeling as though that was not the best way to settle differences among "ourselves and our neighbors." Only yesterday I heard of a good woman who is not living with her husband. The reason was, that she told him plainly she would not live with him any longer unless he gave up tobacco. As soon as I heard it I said at once, "Oh dear! oh dear! What a *sad* blunder they are *both* making!" I repeated the conversation at the breakfast-table, and, to my dismay, Constance declared she thought the woman did just right; and when I looked up in astonishment and pain, she clinched her argument by saying, "Look here, father; if *mother* used tobacco (and some women do use it, you know) would you live with her?"

I replied instantly, without stopping to think a moment, and glanced over to my wife lovingly as I made answer:

"To be sure. I would live with her: and I would stick by her even more faithfully, in such an event, than I do now."

I think she fully agreed with me, for she gave me a bright, encouraging smile, any way. Shall I explain further what I meant by such a remark? Well, I meant this: That, if my dear wife were wedded to *tobacco* or any other such bad habit more than she felt wedded to her *husband*, I would set to work and do my level best in *supplanting* tobacco. I would try to "cut out" tobacco, if that is the right way to express it. Years ago, when one young man worked his way into the affections of a young lady who was already waited upon by another "feller," he was said to "cut" the said party of the second part "out." And that is just what I should try hard to do. I remember quite well, away back when my wife and myself were in our teens, some little difficulty came up between us; and I said that, unless she would consent to do as I thought she ought to do, I would go away and not come back *any more*. A sad state of affairs, was it not? She very quietly said, "All right." I went away to do as I said. I concluded, however, after a few days, that I had got the worst of the bargain, and begged pardon, and took back my ugly threat. There *is* one way in which a hundred Christians can chase ten thousand, but I don't believe it is by threats. Threats are almost always bad. Certain kinds of threats are called boycotting; and boycotting is certainly a very dangerous weapon. I do not mean to say that it should never be used; but it should be used with great care and wisdom. I am sure it is right to boycott a saloon keeper, and to starve him out; but, come to think of it, I do not think "boycotting" is just the word I would recommend, after all. I once told a saloon-keeper that, if he set up a bar in his boarding-house, I would, by every fair and honorable means in my power, keep my employes from patronizing him; but that, if he would keep a respectable house, I would, on the contrary, do all I could to assist him in building up a prosperous business. I said it to him plainly and kindly, and, I believe, with neighborly feelings. Well, now, suppose my good wife *did* use tobacco; how would I go to work? Why, I would endeavor to get between her and the appetite for tobacco; and I would do my level best to succeed. Under certain conditions almost any young man can work pretty earnestly in winning a young lady's affections. Once upon a time it was deemed expedient to keep some piece of news from me. My good wife suggested that it was next to impossible. She said that, when I got hold of the least clew, no one who talked with me at all could resist my ability to bring to light the full facts in the case; and yet I always did it by fair and honorable means. I do not mean to boast, but quite the contrary. When one sets about something he very earnestly wishes to accomplish, if he works hard enough, and holds on long enough, if he is an earnest Christian he will generally succeed; and he will do it by fair means too. Why, we have the Bible promise for this very thing. You will remember the bright little text I talked about a few weeks ago. "No good thing will he withhold from them that walk uprightly." Yesterday, in our morning reading at church I was almost startled by one almost parallel to it. I put my finger on it to call my wife's attention to the brief little promise: "Unto the upright there ariseth light in the darkness."

Well, now, this matter of tobacco I would get my good wife to give up by showing her something a great deal better than tobacco. I would get myself in between her and the tobacco habit. I do not mean particularly to call *myself* something a great deal better than tobacco;

but I would show her something higher, nobler, purer, and a thousand times more satisfactory than any enjoyment or comfort that tobacco could give. You may suggest, that may be I might slip up in my undertaking. No, I should not. I am sure of it. *God helping me*, I should succeed. Pardon me if I revert again and again to this matter of winning a companion for life. No young man wins his girl by *boycotting*. Why, the very minute be begins to use any sort of threat he has lost his chance. A threat in such a case would not do at all, especially with a woman that is *worth* having. He must win his prize by pleading; by kindness and gentleness; by being a *man* in the truest sense of the word; and in just this way we are to win the world to Christ. Yes, in *just* this way—at least, so it seems to me—we are to win the *great wide world* to the desirability of keeping the Sabbath; and we need not go about it with trembling knees and sinking hearts either; for every good man—every one who loves purity and godliness and straightforwardness in its best sense, should have reason to know by *past experience* that he is more than a match for *twenty* men who are bad and wicked. But he must preserve his *integrity;* he must meet them with such kindness and gentle bearing, that, even though he is opposed to their plans and schemes, his very demeanor commends *itself* to them. He must be a *pure* man; and if he is obliged to use force, or, in other words, to have recourse to law, he must do it in such a gentle way that those he punishes will feel as if he were a *friend* and *neighbor* still.

I do not know how the matter will turn out about this Sunday opening at the Exposition, eventually; but I do not believe that our nation is going to go backward in such an important matter. Neither do I believe that intoxicating liquors will be sold on the grounds. With all the good people we have in this United States of America, the matter seems impossible. It is but a few years since intoxicating liquors were sold on our Medina fairgrounds; yet public opinion is such that it would be next to impossible now. I believe it was the county fairs that commenced to banish the beer-trade; then the State fairs followed, one State after another. You see, the movement for good commenced with individuals; and it grew, and is going to keep on growing.

I am now going to touch upon something more sad and alarming than the Exposition question. In the great State of Pennsylvania, just a few days ago there was an outbreak between capital and labor. The police regulations were not sufficient to preserve law and order. I may not be in possession of the full facts in the case; but I believe it was something like this: The workmen of a certain large manufacturing establishment either demanded more pay or else objected to a reduction in pay. The result is about the same in either case. The proprietors must either shut down or train new men to fill the places of the strikers. This latter the strikers would not permit. And in this they rebelled against the laws of the United States when they undertook to use force to prevent others from taking the places they had vacated. It was a rebellion on a small scale. A rebellion of any sort should be put down; or, better still, if it is a possible thing we should avoid having a rebellion. In this case prevention is certainly better than cure. Well, the proprietors called for additional police force and assistance. Our pastor, in referring to it yesterday in his sermon, said that, *under some circumstances*, calling for additional police force is like loading the safety-valve to get more work out of your boiler. It might get you out of temporary embarrassment, providing the boiler did not burst and blow up the whole ranch. Police force is all right and good so far as it goes; but in this case, for some reason or other the additional force was not forthcoming. Public sentiment was so against the proprietors, or the *millionaires*, if you choose, that they refused to arrest the strikers; or, if they did not refuse to arrest them, they did it with reluctance and a want of heartiness, If you want a policeman to work effectually, you want to give him a cause where he can have his heart in his work, and where he feels sure that he is working for the public good; then the moneyed men, who doubtless thought *millions* would do *every* thing, sent for Pinkerton detectives. But this so incensed the strikers that they turned their whole spite on the Pinkertons, and a sad sight followed. When I heard of it I said almost exactly as I did when I heard of the good wife who left her husband because he did not give up tobacco, "Poor deluded mortals on both sides!"

Do you wish to know why I feel sorry for them? Well, I feel sorry for the millionaires because they are so foolish as to imagine their *money* was going to enable them to rule their workmen by might and by power; or that they imagined Pinkerton detectives were going to bring *peace* and *harmony* into that community. When the Bible says that five shall chase a hundred, do you think it means that five *Pinkerton* men shall chase one hundred strikers? Why, they might if they had *right* and *justice* on their side. But even if they did, they would have to do it over again every day or two. One good earnest Christian ought to be able to do more for peace and harmony at such a time than all the Pinkertons in Chicago. May be you think I do not know what I am talking about. In my last talk, perhaps some of you thought I was presuming a good deal in what I said. I talked as if I were *intimately acquainted* with the *prince of darkness*. Well, I tell you I ought to feel acquainted with him; yes, I ought to feel that I know him better than any other individual in this whole wide world. Well, I am somewhat acquainted with detectives too. Once or twice I have been persuaded that it was well to do *evil* that *good* might come of it. I have paid some hard-earned money to detectives, and have had a glimpse of their way of managing. Christ Jesus said, "In secret have I done nothing;" and *I* do not see how a follower of his *can be* in the detective business, or help employ detectives. Well, what shall be done in Pennsylvania? Why, it seems very clear and plain that loading down the safety-valve is not the way to run machinery: it is behind the times. It is not in harmony with the teachings of Him who said, "Love ye your enemies." I have no sympathy with the strikers, as you may well know; neither have I sympathy with the millionaires, who think that, because they control millions, they are better than other people. I have been told that the rebels in Pennsylvania (and they are rebels) are not only skilled workmen, many of them, but are among the better classes. This would show that the provocation has been great and severe.

I have told you about a large factory where they paid their men Saturday night 20 per cent less than they had been in the habit of paying. This they did without notice or consultation of any kind with the workmen. When some one had the "cheek," as the employers termed it, to inquire about this reduction without notice, all the reply he received was, "If you don't like our way of doing business, you know what to do." This is what I should call loading the safety-valve. Well, friends, you have probably guessed that what I mean is, that five shall chase a hundred by doing it by the power of *love*, and not by might or strength of money. If I went to work to stop my wife from using tobacco, her affection, love, and esteem for me, and mine for her, would be the great lever on which I would work. In all these years since my first Christian experience, this mighty lever has been growing so long and strong that I am sure that even Satan himself with all his allies could never break nor bend it. I should expect her to spring forward on the instant, with something like this: "All right, dear husband. If the tobacco I use gives you so much pain I will drop it this instant, no matter what it costs me:" and not to have the matter one-sided, I should expect, of course, to do the same in regard to any other habit of *mine* that gave *her* pain. Why, I should not be *half a man* if I could not sacrifice *something* for her dear sake.

And now between proprietors and their help, there should be this same principle of Christian love. When the proprietor is in a tight place, with work to be done at a certain time, the feeling of good will between himself and his men should be such that, just as soon as he came among them and stated his wishes, there would be a grand rallying to the front, with an invitation to him to "bring on the work," telling him it would be finished in first-class style at the time he wanted it. Why, such a state of affairs, compared with things as they are in that community in Pennsylvania, would seem like a heaven upon earth. But yet it is no myth. There are various manufactories here in our country that come very near to it. Now, this good will—this cheerful alacrity among men—can not be purchased with *money* alone. It can not be worked up in a day. The employer must, by personal acquaintance, gain the good will of his helpers by just and considerate dealing and acts of kindness and sympathy. He must be one among them. In this way five men *shall* chase a hundred, and a hundred shall put *ten thousand* to flight.

GLEANINGS IN BEE CULTURE

A Journal Devoted to Bees and Honey and Home Interests.
Illustrated Semi-Monthly
36 Pages 7×10
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Jesus said, I am the light of the world: he that followeth me shall not walk in darkness, but shall have the light of life.—JOHN 8:12.

OH my! you just ought to see what beautiful combs horizontal wiring gives on medium brood foundation. It is really too bad that bee-keepers generally have never given this plan a careful trial. The combs that we are now getting are like solid boards; and in many cases they are already being built clear down to the bottom-bar, leaving no lurking-place for queens or bees to hide. So much for a narrow bottom-bar.

THE flow from basswood has been exceptionally heavy. We never saw the bees working so strong as they have been during the last week. On or about the first of July our colonies were on the verge of starvation. At this date, July 12, all the hives are crammed full of honey, and even nuclei have filled their combs. This large supply of nectar seems to come entirely from young basswood-trees, because the old ones have been cut down for sections.

Later.—It transpires that some of this honey, at least, is from white clover, which this year we thought would amount to nothing.

SOME years ago we were quite severely and harshly, as we thought, criticised for offering to sell laying queens at a dollar each, such queens being styled worthless, etc. It is a little refreshing, if not comical, to notice how those same parties are now selling untested queens for from 75 cts. to $1.00. Did these critics of bygone days forget the past when the logic of dollars and cents convinced them of their former error, and that good queens could be produced for this money?

WE shall be very much obliged if bee-keepers all over the country, just as soon as they read this, will send us a postal card, answering, in not more than four or five words, these two questions: 1. How has the honey season been with you this year? 2. What is your average per colony up to date? Answer by number. We are well aware that this will be too early for many localities, on account of the lateness of the season; but we want just such information as you are able to give at the time of signing the postal card. What we desire to do is to report the condition of the honey season, so far as possible, throughout the country.

WE are receiving excellent reports from the new Hoffman frame, with its V edge on one side of the end-bars. Theory says the sharp point will not work: but practice and experience say emphatically that it does. The more we try and use these frames, the more pride we take in feeling that we called the attention of bee-keepers in these latter days to something which has been used successfully for the last ten or twelve years. The V edge has been quite severely attacked by those who have not tried it. It might be well for those critics to give it a trial.

E. T. FLANAGAN, of Belleville, Ill., says, in the *Bee-keepers' Review*, that, after years of experience, he has come to the conclusion that it is far better and safer to ship bees on a frame of brood and honey than to ship them in pound packages with only candy: and that the slight additional express charges, as a result of the former method, are more than made up by the better condition of the nucleus. This is exactly our experience. We have been testing the matter again this summer, with the same old result that pound packages on the Good candy are a very unreliable method of shipping bees. Bees on combs invariably go through in good order, while bees on pound packages seldom do.

SOME weeks ago we purchased one of Doolittle's queens that produce bees having abdomens almost solid yellow. On most of the bees there is only a little tip of black just back of the sting. They are not old enough yet to be tested for honey. Last fall we received from W. H. Laws a queen whose bees are four and five banded. These bees are also beautiful, and good honey-gatherers, as well as being gentle. We have had other bees of the five-banded sort that were very inferior—not only as to the industry of the bees, but as to the prolificness of the queen. Three such queens with their colonies succumbed during winter, while almost the whole apiary wintered nicely. The Laws queen proved to be hardy, and we have no doubt that the one from Doolittle will do equally well.

TO test more carefully horizontal wiring we have been trying frames with three, four, and five horizontal wires, for the purpose of determining which number of wires would give the best results. Three wires, such as we have been advocating, do quite well; but four wires are better; but we do not yet discover that the five wires have any particular advantage over the four, because the combs built from light brood foundation on the four wires are very nice. From some careful experiments we have been making, we find that *medium* brood foundation gives rather better combs than the light brood, under the same conditions. We therefore recommend four horizontal wires and medium brood foundation for the Langstroth size of frame. This brings the wires about two inches apart. Try the experiment yourself; and if you can get more perfect combs in any other way, we should like to know it. Those we have are as smooth and even as the surface of a board.

Perhaps some of our readers would like to know how thick-top frames are doing as regards presence or absence of burr-combs. Some of them have been in use now for three years, and they are perfectly clean to-day, so far as spurs of wax are concerned, although they are soiled, as a matter of course, with propolis. It is such a comfort to pull off the cover of hives having these frames in! The bee keeper who has tried the two kinds of frames in hives side by side, the old burr-comb frame and the non-burr-comb, we are sure will declare that he will never, *never* go back to thin and narrow top-bars.

Prospects for a honey crop, according to the reports we are receiving from various parts of the country, have improved very much during the last ten days. The season has been very late, and consequently many bee-keepers were discouraged, fearing the honey would never come. While a couple of weeks ago we were getting reports almost daily, to the effect of "No honey," "Season a total failure," etc., we are now receiving reports more of this character: "Bees just booming;" "Basswood promises big;" "We are extracting our first honey;" "Never saw such an immense amount of basswood bloom." And even clover at this late date seems to be making a tremendous effort to make up for lost time, in furnishing nectar at the eleventh hour. Clover is *following* basswood in our locality this year. General indications are, that in the basswood regions there will be a very heavy flow of honey.

RASCALITY WHERE IT BELONGS.

It seems to me that there has not yet been sufficient emphasis put upon the fact that the adulterated honey which Prof. Wiley supposed came from Mr. C. F. Muth was not Muth's honey at all. You will notice the labels read, "Muth's California Machine-extracted Honey." Now friend Muth writes us that he never had any labels in the world with "California" on them; and the evidence is plain and clear that some rascally adulterator, having found out that Muth's name and reputation are worth more than any thing else he could say in a few words, used this means to sell his spurious trash, and, of course, this exonerates friend Wiley. He supposed, of course, that the honey on the market, labeled as above, was from C. F. Muth, of Cincinnati, Ohio. Now, then, can't somebody find out where packages bearing the above label came from? and then let us make it as hot for the *real* rascal as we can, and teach him, if possible, that the way of the transgressor is hard. A. I. R.

STARTING BEES TO WORK ON BASSWOODS.

During the last week or so of June we had been expecting, for nearly every day, that the bees would start on clover-blossoms; but for nearly ten days they seemed to be on the verge of starvation, and some nuclei required to be fed. We finally became discouraged, and made up our minds to feed them anyhow. The bees had just started a little on basswood; but we had little faith that any thing would yield honey this year, so we told the boys to go ahead. Well, it seems the bees had been working on basswood more than we supposed; and although it was pretty well toward evening after they had been given the big feed, the stimulus of the syrup just given them started them out in a perfect roar on the young basswoods. The result is, that they worked on the trees till late in the evening. The poor bees, like ourselves, had probably become discouraged, and did not believe there was any honey in the basswoods; but the sudden supply of stores made them think there *must* be honey *somewhere*, and out they rushed for the trees. Some of our older readers will remember our experiment of years ago, how, when we fed the bees, they would immediately rush out and buzz around the honey-house door, where they had at one time been robbing heavily.

AUTOMATIC SWARMERS.

The Pratt automatic swarmers are still doing good work. Since the two swarms came out, and were successfully hived, as reported in our last issue, the swarmers have captured several others, and the bees have gone to work in dead earnest in their new quarters. As an illustration: On Sunday morning, the 10th, Huber, our small brother, you know, came rushing over, saying that a swarm of bees was out. We very leisurely made our way to the apiary, and contented ourselves with the assurance that it *must be* from one of the colonies rigged up for swarming, *a la* Pratt, and would therefore require no attention. We looked over a number of hives, but could not determine from which one the swarm came. The bees finally alighted on a grapevine, and to hurry things along we smoked them off. After circling about a few minutes they began to pour back by the hundreds into the hive from which they came. On Monday, the next day, examination showed that they had not only gone into their new quarters but had drawn out eight frames of foundation and deposited honey therein, leaving one or two frames in which the queen deposited eggs. There was nothing but young bees in the upper story, and that nervous hum that indicated they felt that they were queenless. The swarm below must have drawn out eight combs and gone a long way toward filling them with honey in about thirty-six hours; because the night before—that is, on the evening of the 9th—the empty hive with frames of foundation was given them.

Although we have had excellent success with the automatic swarmers, we advise all to go slow. One, two, three, or even a dozen swallows do not necessarily make a summer.

BASSWOOD AS A HONEY-PLANT.

It is now something like twelve years since we planted a row of basswood-trees on the north side of our ranch; and we have been watching these trees season after season, to learn what we could about the growth of them, the secretion of honey, etc. During this present year of 1892, when my mind was occupied a good deal on other matters, my attention has been called to the basswoods by the exceedingly profuse bloom and loud roar that greeted my eyes and ears every morning about sunrise, or a little after. It was not the ears and eyes alone that were delighted either, for the perfume of ten thousand opening blossoms was quite a prominent part of the enjoyment. Every tree that was large enough has been for several days back just bending under its load of bloom, and it seems as if a part of the load were made up of nectar; and, finally, when we almost began to despair of any honey flow at all, even, *this* year, the gates, as it would seem, have been opened, and we have had a flow of honey that many think exceeds any thing during the past ten years. Just as we go to press, reports begin to come in from every direction, about the honey-flow; and my enthusiasm in growing basswoods for honey as well as for timber has again awakened. There is not a handsomer shade-tree in the world, in my opinion; and I am quite certain that there is no other plant that bears honey, that *begins* to furnish any thing like the quantity. If I could only make the pesky little seeds germinate and grow as we do cabbage-plants, I should just delight in furnishing the whole wide world with millions of basswood-trees at an exceedingly low figure. Well, we shall see. Who knows but that a plant-garden so fully equipped, which I have pictured to you on another page, may not, after all, be just the thing for turning out basswood seedlings without limit, as well as tomato-plants, cabbage-plants, etc.?

A. I. R.

LUTHER W. GRAY.

On page 695, Sept. 1, 1891, is an article with the above heading. At the same time we also published a letter from his father, telling why we should not publish his son as a swindler, even if he did receive money for queens for which he made no returns. At the conclusion of the above editorial I stated, "There, I have tried to treat this whole matter in a Christian-like way, and in a fair way to all parties concerned." In the same editorial I asked all those who had lost money by friend Gray to tell us how much, etc. Since that time I have settled all claims, or, at least, settled with all who would allow me to pay them for the money they lost by intrusting it to friend Gray. And now comes the best part of it. To-day we received the following letter:

Mr. A. I. Root: – Inclosed find draft for $90.00, balance due on bee claims; also 50 cts. for GLEANINGS.

Yours truly, LUTHER W. GRAY.

Zanesville, O., July 8.

Friend Gray had previously sent us $10.00; and although the claims against him amounted to something more than $100, I had agreed to give him a receipt in full upon payment of that sum. And I hereby request all those who sent money to friend Gray, in response to his advertisement in GLEANINGS, who have not already received pay in full, to let us know at once. Some of you may know that I was censured quite severely because I was so easy with one who received money and did not send the queens nor return the money either. I *tried* to do what I thought was right. And now I am very glad indeed that I was slow to condemn. May the Lord be praised for the outcome! It only illustrates the point I tried to make in our little text to-day: "Five of you shall chase a hundred," etc. I hardly need say, that, since friend Gray has made the *amende honorable* to all parties concerned, he is entitled to the full confidence and respect of the bee-keeping fraternity.

A. I. R.

THOSE NAUGHTY PUNICS.

OUR Punics are doing no better in honey—indeed, we doubt whether they are doing as well—as the average colony of Italians of equal strength; and, with the exception of the Cyprians, they are the *meanest* bees we ever brought into the apiary. July 4th we wanted to show A. I. R. the new race. He at once suggested that we open the hive without smoke, which we did, perhaps a little unceremoniously. The air was immediately filled with hundreds of mad bees; and so persistent were they that *we* gladly ran for a veil and smoker, although A. I. R., true to his aversion for bee-veils, crouched down under a sheltering grapevine, with his hands up to his face. We then smoked the bees, but they boiled all over, about as bad as black bees; and, like black bees, they would hold themselves suspended on the wing, perfectly motionless, apparently, with the exception of the wings, right before the eyes, in a tantalizing way. By the way, we would prefer to be stung, and done with it, than to be held in constant fear of it. The next day one of our boys attemped to run a lawn-mower some few rods away from the Punic colony; but he was very glad to put on a veil, and even then the little scamps pestered his hands. When Mr. Langstroth was here, and shortly after, we took every precaution to keep the bees quiet, or, at least, not to arouse them unnecessarily, for we did not wish to test the temper of a new race of bees in the presence of one whom, at his advanced age, stings might be next thing to serious. The bees were also younger when he was here, and, of course, gentler. Now that they are two or three weeks older, they are regular little demons, unless handled carefully. We should state this, however, that they delight more in bluster and angry buzzing than in actual stings.

In our last issue we stated that they were the worst bees for depositing propolis we ever saw. For example, we have a crate of sections on their hive; and even before there was an ounce of honey put in them (there is not more than a few ounces now in the whole crate) these Punics besmeared the sections all around the edges in six days in a way that is worse than any hybrids ever thought of doing in six months. If our Punics are a fair sample, we do not see how any one can regard them as gentle; and more and more they are beginning to show the regular characteristics of the common black bee.

QUIGLEY'S GOLDEN QUEENS.

Are large, beautiful, and prolific. The bees are industrious, gentle, and hardy. Warranted purely mated, each, $1.00; 6 for $5.00. Untested, each, 70c; 3 for $2.00. Satisfaction and safe arrival guaranteed. Circular free.

14tfdb E. F. QUIGLEY, Unionville, Mo.

QUEENS BY RETURN MAIL.

Punic queens after July 15. Untested, each, $1.00; 6 for $5.00. None but Punic drones flying. No other bees near. Safe arrival guaranteed.

J. S. KLOCK, Urban, North'd Co., Pa.

FALL Eggs and Plants, Fowls, Poultry-books and Papers; finely ill. circular free. Address
GEER BROS., St. Marys, Mo.,
14tfdb Or, H. B. GEER, Nashville, Tenn.

FOR SALE.

At $4.00 per colony; 20 colonies of Italian bees in 1½-story Dovetailed hives. H. BENNETT,
14-15d Union Furnace, Hocking Co., O.

ITALIAN QUEENS FROM IMPORTED MOTHER, in July, August, and September; untested, 75c each; $6 per doz. Tested, $1.00 each; $10 per doz.

PERCY COVINGTON, Appleton, Cecil Co., Md.

UNTESTED ITALIAN queens reared from imported mothers, ready to mail at 60c; 6 or more, 50c each. W. A. COMPTON, Lynnville, Tenn.

5-BANDED ITALIANS

In Root's Simplicity Hives, Wired Frames, $3.50 Each.

W. HUSSEY, Mt. Pleasant, Ohio. 14-15d

The Weekly "American Bee Journal" ✻
——32 pages—$1.00 a Year——
The Oldest, Larges , Best and Only Weekly
Bee-Paper in America. Sample Copy Free

The American Bee Journal

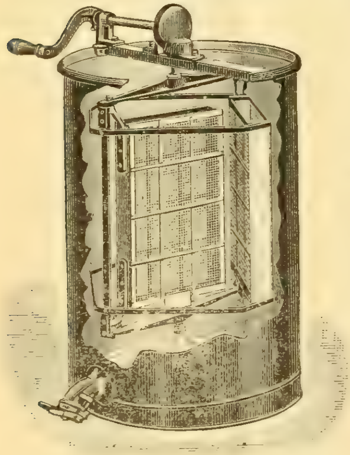
Address ✻ **GEORGE W. YORK & CO.,**
199 Randolph St., - CHICAGO, ILLS.

DOVETAILED HIVES, SIMPLICITY HIVES,
SECTIONS, EXTRACTORS, ETC.
A FULL LINE OF
BEE-KEEPERS' SUPPLIES.
60-PAGE CATALOGUE. 1tfdb
J. M. JENKINS, WETUMPKA, ALABAMA.
☞In responding to this advertisement mention GLEANINGS.

Foundation Reduced 3 cts. Per Pound.

SECTIONS I sold at $3.00 now selling at $2.60. Bingham Smokers at cost. Send for Free Price List of every thing needed in the apiary. 6tfdb **M. H. HUNT, Bell Branch, Mich.**

A Grand Success.



New Cowan Reversible Honey-Extractor.

May be Reversed Without Stopping the Machine.

Strong, well made in every respect, light, and of convenient size. The can is but little larger than that of the Novice. The gear is beveled, and covered by an iron shield, and the crank outside the can. Frank McNay, of Mauston, Wis., a bee-keeper who produces tons and tons of extracted honey, says of it:

After carefully examining and trying the Cowan extractor, I have failed to find a weak part, and I do not hesitate to say that it is the best extractor made, both in regard to convenience and durability, and I shall replace all of my five machines with the Cowan as soon as possible.

It is indorsed also by J. F. McIntyre, an extensive extracted honey producer in California; by W. Z. Hutchinson, Dr. C. C. Miller, and others

Price all Complete, Japanned and Lettered, for L. Frame, $10.

A. I. ROOT, MEDINA, OHIO.

ROOT'S GOODS FOR THE EAST.

Bee-Keepers of the East should

Bear In Mind that we have established at Syracuse an **Eastern Branch**

where our Bee-keepers' Supplies are kept for sale, and prompt shipment. You can save time and freight by ordering from our Eastern Branch. We have engaged Mr. F. A. Salisbury to take charge of this business, and he will treat you well. He will be pleased to send you a list of goods kept in stock.

Address all orders,
EASTERN BRANCH, F. A. SALISBURY, Agent, Syracuse, N. Y.

ELLISON'S FINE ITALIAN QUEENS and Bees.

PRICES FOR JUNE AND AFTER.

1 untested queen	$ .75
3 " "	2.00
1 tested queen	1.50
3 " "	4.00
Select Tested, each	3.00

Two-frame Nucleus with any queen, $1.50 each extra. Safe arrival guaranteed. **W J ELLISON,** 10d
Catchall, Sumter Co., S. C.

Please mention this paper. 11 12 1 14

JUST OUT!

TILE ✠ DRAINAGE.

BY W. I. CHAMBERLAIN, A. M., LL. D.,

Formerly Secretary of the Ohio State Board of Agriculture, and late President of the Iowa State Agricultural College. At present Associate Editor of the Ohio Farmer.

This is a valuable companion to our other rural books. It embraces the experience of forty years of one of our foremost practical agriculturists, who has laid with his own hands over 15 miles of tile.

Price 35c; by mail, 40c.

A. I. ROOT, MEDINA, OHIO.

Get the Best!

Five-banded Golden Italians that will give satisfaction. Queens by return mail, $1 each; 6 for $5; for full particulars send for circular. 13tfdb

CHAS. D. DUVALL, Spencerville, Md.

☞In responding to this advertisement mention GLEANINGS

Muth's

Honey - Extractor.

Square Glass Honey-Jars,
Tin Buckets, Bee-hives.
Honey-Sections, &c., &c.
Perfection Cold-Blast Smokers.

APPLY TO

CHAS. F. MUTH & SON, Cincinnati, O.

Send 10-ct. stamp for "Practical Hints to Bee-keepers.'
Please mention this paper.

STILL on hand about a dozen of those specially mated, yellow-to-the-tip breeders of last fall's rearing, at $2.00 each. Beautiful Warranted Queens, 80c; 3 for $2.00. For square dealing and good goods I refer to the editor of this journal. 13-14d.

W. H. LAWS, Lavaca, Ark.

SAVE MONEY.—Send to J. P. H. Brown, Augusta, Georgia, for his price list of supplies. Hives and foundation at wholesale rates. 4tfdb

---

ALWAYS
ON
TOP

Our Golden and Leather Colored Italian Queens.

Bred for Business.

Tested queens, $1.10; untested, 70c; 3 for $2.00. Our stock consists of 300 colonies devoted to bees and queens for the trade. **Orders filled by return mail.** Send for catalog of supplies, etc.

JNO. NEBEL & SON, High Hill, Mo.

P. S.—A. J. Fields, of Wheaton, Ind., writes: "The queen and bees received of you last spring made 147 lbs. of comb honey, and took first premium at three fairs." 8tfdb

☞In responding to this advertisement mention GLEANINGS

SECTIONS.

$2.50 to $3.50 per M. Bee-Hives and Fixtures cheap. **NOVELTY CO.,**
6tfdb **Rock Falls, Ilinois.**

☞In responding to this advertisement mention GLEANINGS

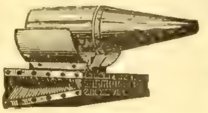
HAYES' IMPROVED

FOUNDATION FASTENER.

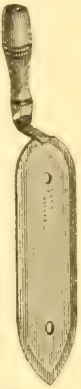
FASTENS Full Sheets or Starters. Instructions sent out with every machine. Satisfaction guaranteed. Price, without lamp, $1.75; with lamp, **$2.00.** Manufactured by permission. See illustration in GLEANINGS for April 1st, 1891, page 268.

12d **E J. WEAKLY, Washington, Kan.**

✣BEST ON EARTH✣



ELEVEN YEARS
WITHOUT A
PARALLEL, AND
THE STAND
ARD IN EVERY
CIVILIZED
COUNTRY



Bingham & Hetherington

Patent Uncapping-Knife,

Standard Size.

Bingham's Patent Smokers,

Six Sizes and Prices.

Doctor Smoker,	3½	in.,	postpaid	$2.00
Conqueror "	3	"	"	1 75
Large "	2½	"	"	1 50
Extra (wide shield)	2	"	"	1.25
Plain (narrow ")	2	"	"	1 00
Little Wonder,	1¾	"	"	65
Uncapping Knife				1 15

Sent promptly on receipt of price. To sell again, send for dozen and half-dozen rates.

Milledgeville, Ill., March 8, 1890.

SIRS:—Smokers received to-day, and count correctly. Am ready for orders. If others feel as I do your trade will boom. Truly, F. A. SNELL.

Vermillion, S. Dak., Feb. 17, 1890.

SIRS:—I consider your smokers the best made for any purpose. I have had 15 years' experience with 300 or 400 swarms of bees, and know whereof I speak. Very truly, R. A. MORGAN.

Sarahsville, Ohio, March 12, 1890.

SIRS:—The smoker I have has done good service since 1883. Yours truly, DANIEL BROTHERS.

Send for descriptive circular and testimonials to

7tfdb **BINGHAM & HETHERINGTON, Abronia, Mich.**

☞In responding to this advert[illegible]

WANTED—LADY OR GENT IN EACH county to distribute and collect for Brabant's ladies' toilet cases; 238 articles, worth $1; will send sample and full particulars by mail for 35c in stamps; returnable if not satisfactory; territory free; $3 to $5 per day easily made. Address J. C. FRISBEE, general agent, 172 Maple St., Denver, Col.

Reference, A. I. Root, Medina, O. 8-24db

☞In responding to this advertisement mention GLEANINGS

TAKE NOTICE!

BEFORE placing your orders for SUPPLIES, write for prices on One-Piece Basswood Sections, Bee-Hives, Shipping-Crates, Frames, Foundation, Smokers, etc. PAGE & KEITH,
14tfdb New London, Wis.

Please mention this paper.

Cash for Beeswax!

Will pay 23c per lb. cash, or 26c in trade for any quantity of good, fair, average beeswax, delivered at our R. R. station. The same will be sold to those who wish to purchase, at 29c per lb., or 33c for *best selected wax.*

Unless you put your name *on the box*, and notify us by mail of amount sent, I can not hold myself responsible for mistakes. It will not pay as a general thing to send wax by *express.*

A. I. ROOT, Medina, Ohio

LOOK HERE !

Sample five-banded Italian bees free in July. Prices of untested queens: One queen in July, $1.00; six, $5.00; August and September, 75c; six, $4.00. Address

J. F. MICHAEL, German, Darke Co., O.

FOR SALE.

One Barnes combined machine, with three circular saws, three cutter heads, and gig-saw attachment; all in good order; Bingham smoker and honey-knife; 12 60-lb. square honey-cans, and tin frame basket; some 40 colonies of Italian and Carniolan bees in hives, with a good outside case, made to use winter and summer, with space around brood-chamber for packing, tin roof hinged, and movable brood-chamber; brood-chamber takes 9 frames 9x12, or 10 if spaced 1¼; outside case holds two brood-chambers which lock together with bee-space which can be used for extracting combs, or comb honey; bound perforated zinc queen-excluders and wood honey-boards, all painted and in good order; also 3000 one-piece 1-lb. sections, 4⅛x4⅝x1½, open on all sides, of basswood, first quality. The brood-frame holds six of these sections; some 15-lbs. light surplus foundation in strips 4 in. wide; one new Novice honey-extractor for the above frames to hang as in hive with space below basket for 30-lbs. of honey; 200 9x12 brood and extracting combs.

Sold in a lot or singly at very low figures. Address at once, **GEO A WALRATH.**
14d Norwood, St. Law Co , N. Y.

FOR SALE OR EXCHANGE.

Sixteen Heddon improved Langstroth hives in the flat, with double surplus honey-cases, and one-pound sections for same, *cheap*. Must sell at once. Address KILBURN & KIRKLAND,
336 Broadway, Knoxville, Tennessee.

Wants or Exchange Department.

TO Exchange.—Egyptian or Winter Onion Sets for English Multipliers—sets or large onions. Offers solicited. Will sell for cash. Write. #14d
EDWARD B. BEEBEE, Oneida, N. Y.

WANTED.—To exchange one high-grade Safety bicycle; one 49-inch Columbia light roadster bicycle; one Odell typewriter; tested Italian queens, for wax, honey, or offers. J. A. GREEN,
13tfdb Dayton, Ill.

WANTED.—To exchange pure Italian queens, 3 or 5 banded. Write what you have to exchange.
F. C. MORROW, Wallaceburg, Ark.

HAVING come into possession of 3 sets International Cyclopedia, different bindings, 15 vols. each, I will exchange at half price for money or wax. A. H. VAN DOREN, Mons, Bedford Co., Va.
14-15d

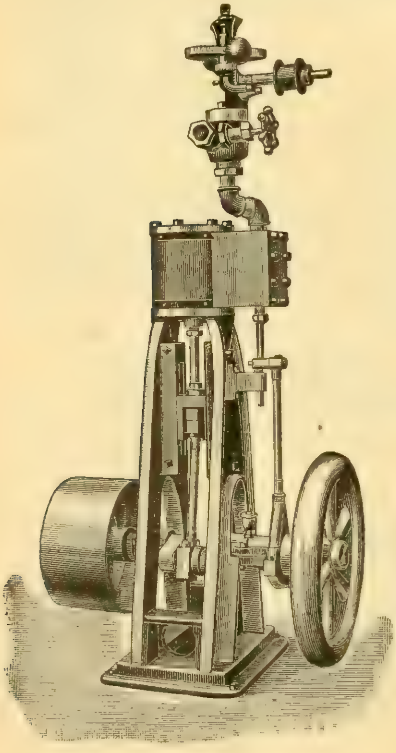
WANTED.—To exchange 25 new "Hunt" hives (chaff), about one half nailed together, balance in flat; 250 good straight brood or extracting combs, built from full sheets of foundation; 100 Hoffman frames, wired, and a quantity of other frames; also a honey-extractor, used but one season, and in first-class condition; also 10 Langstroth Portico hives, single wall, in good condition, for Safety wheel, or offers. Reasons for selling hives, etc., have sold all my bees. GEO. N. CORNELL,
Lock Box 6. Northville, Mich.

Black and Hybrid Queens For Sale.

Ten mismated Italian queens, of good business qualities; one queen, 40c; three for $1.00.
HILL MFG. CO., Box 120, Dennison, Ohio.

I have for sale about 6 black, or nearly so, queens at 25c each; and about 30 hybrid queens, at 40c each: three for $1.00. All our queens are clipped.
J. H. NELLIS, Canajoharie, N. Y.

ENGINES.



Yes, we build a few. We have, in connection with our large bee-plant, a first-class, well-equipped machine-shop, in which we build all kinds of bee-hive machinery, saw-mandrels, saw-tables, dovetailing-machines, foundation-mills, extractor-gearings, etc., and, when our men have nothing else to do, engines. These are upright in style, and economize floor space. They are built under the special supervision of an expert machinist of many years' experience. The rods are all of finished steel. The cross heads and slides are of the substantial locomotive style. The cylinders are lagged with Russia iron, and are brass-bound. The boxes are babbitted, and can be easily taken up for wear. The piston-head is provided with two expansion-rings. The bright parts shine like a dollar. The governor is a Waters, substantial and reliable. We have three of these engines running in our works. One has been running two years, with excellent results. Making them, as we do, during our dull season, they are immeasurably superior to the ordinary engines of their kind, and the price is low, considering the very fine quality of the work. Price of the 2½-horse-power engine, governor and govener-belt, all ready to attach to a boiler, $75; 5 h. p., $100; 7½ h. p., $125; 10 h. p., $150. These prices are net, although we will make the usual discount for cash. If you want a thoroughly well-made engine, you can not do better than to select one of these, providing the range of power is within what you need. While we compete in quality of workmanship we can not compete in price with some of the cheap engines on the market.

A. I. ROOT, MEDINA, OHIO.

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CONVENTION NOTICES.

The Colorado State Bee-keepers' Association will hold its "Honey Day" at Longmont, Sept. 28. H. KNIGHT, Sec.
Littleton, Col.

SPECIAL NOTICES.

DAISY WHEELBARROW.

We are reminded, nearly every time we sell one of these, of the appropriateness of the name, for they *are* a daisy, and no mistake. Now, although we have sold over two carloads of them I don't believe our readers and their friends who need just such a barrow are all supplied. As it takes three barrows to weigh about 100 lbs., and they will therefore go by freight for the same as a single one, we have decided to make a special low price in lots of three, so that in most cases our readers can supply themselves with the wheelbarrow, freight paid, for less than the retail price here, provided they club their orders or induce some of their neighbors to go in. We will furnish three of the No. 2, or large size, on board cars here, for $10.50; or three of the No. 3, or small size, for $10.00. Our retail price for a single one is $4.25 and $4.00, while the usual price is $5.00. Here is a chance, by taking three together, to get them, freight paid, at from $3.50 to $4.00 each. This is a special offer for a limited time.

BUSHEL BOXES.

It is nearing the time when potatoes, tomatoes, onions, and other special crops must be taken care of; and those who handle them will be (or ought to be) considering the easiest, cheapest, and best means of doing so. T. B. Terry has conclusively shown, in his admirable little book, the A B C of Potato Culture, that potatoes bring a better price, can be handled with less work, and better in every way, by using bushel boxes. More and more each year are learning the truth of Mr. Terry's reasoning, and some are also finding out that these boxes are equally valuable for handling other crops, such as onions, tomatoes, cucumbers, melons, etc. We make and keep in stock three styles of these boxes, as advertised in another column. If none of these is to your notion, we are prepared to make any style you want, in any quantity (not less than 100), at very low prices. We use basswood, which holds nails without splitting, and is lighter than any other wood we could use. Dealers or agents wishing to work up large orders will do well to write us for special prices.

LAWN-MOWERS AT COST.

As the season is getting late, and we have a stock of machines greater than we care to carry over, we offer them for the next 60 days, or as long as they last, at the following cut prices, which are about cost to us, or below, and about 20 per cent below our regular list price.

10-inch Young America	$3 00
12-inch " "	3 50
10-inch Globe mower	3 75
12-inch " "	4 00
14-inch " "	4 30
16-inch " "	4 75
18-inch " "	5 10

Here is a rare chance to get a good machine cheap. Even if you don't need it till next summer, this is good interest on your money. Remember, these are no seconds or inferior goods. The Globe is a high-grade machine, first class in every respect. The Young America is a good light machine with a single drive-wheel. On the inside of back cover of last number you will find cut and further particulars in regard to these mowers, as well as of the wheelbarrows mentioned in this department.

DOVETAILED CHAFF HIVES AND WINTER CASES.

During these extremely hot days, when the thermometer is hovering around 100° in the shade, and when one can hardly move a finger without starting the perspiration, it may seem incongruous and out of place to mention chaff hives and winter cases. It is a wise general that plans for the whole campaign, so it is not too soon to begin thinking and planning how you will protect your bees during the cold weather that's coming by and by. If you are in the extreme north, say above latitude 42°, probably the safest way to winter is in the cellar. Those south of latitude 36° or 37°, are, with few exceptions, not bothered with the wintering problem. Those between these limits, with some exceptional localities, can winter best out of doors; but some additional protection more than the ordinary single-walled hives is needed for safe and economical wintering. Those who use our dovetailed 8-frame hive, or similar hive of same size, can not do better than use our dovetailed winter case, and it is better to use with it the telescopic cover. The winter cases list at $3.50 for 10, and the covers at $2.50, or $6.00 for the two. See pages 23 and 24 of our price list for further particulars. As a special introduction price, to get a good many to try them, we will send, to those who have not tried them, 10 winter cases with telescopic covers for $5.00; or the cases without the covers for $3.00. These prices are for goods in the flat, and do not include any cushions.

The dovetailed chaff hive affords protection from the cold in fall, winter, and spring, and extreme heat in summer; saves the bother of packing and unpacking, and costs only 40 cts. more than a single-walled hive furnished in the same way.

SECOND-HAND FOUNDATION-MILLS.

We have the following list of second-hand foundation machines which have accumulated during the past few months, some in exchange for new machines, others from those who have decided to buy what foundation they use. We give as fair a description as we can of these machines, with the price at which we will sell. We can furnish samples from any of the machines to intending purchasers.

One 6-inch hex., No. O, used a short time in our wax-room; in good order; makes fdn. 10 or 11 feet to the lb. Price $10.00.

One 6-inch hex., No. N, about the same as above. Price $10.00.

One 6-inch hex., No. M, extra-thin mill, in splendid order. Price $10.00.

One 6-inch hex., No. K, thin surplus mill, in good order. Price $9.00.

One 10-inch, round cell, No. L, in good order for light brood fdn. Price $14 00.

One 10-inch, round cell, No. I, for light or medium fdn.; in good order. Price $14.00.

One 10-inch, round cell, No. E, old-style frame; made some years ago, but used scarcely any, and in good order. Price $14.00.

One 10-inch, round cell, No. C, old-style frame; in fair order. Price $12.00.

One 12-inch, round cell, No. D, for heavy brood fdn.; roll, same size as 10-inch, only 2 inches longer; one of the original Washburn mills, in fair order. Price $15.00.

One 12-inch Dunham mill, for heavy brood fdn.; in splendid order; well worth $20.00, but will sell for $16 00.

One 12-inch Dunham mill for heavy brood fdn.; not so good as the above, but in fair order; will sell for $14.00.

GRAY CARNIOLANS

Take the lead in gathering honey. This season we have compared them with the Punics, Italians, and blacks, and they are the only bees that gave us any surplus honey this (poor) season. Prices, untested queens, each, 75c. Tested queens, each, $1.50.

Prices of Golden Italians same as Carniolans. For large orders write for prices.

F. A. LOCKHART & CO., Lake George, N. Y.

☞In responding to this advertisement mention GLEANINGS.

TESTED ITALIAN QUEENS, 80c

IN JULY AND AUGUST.
Mismated queens, 40 cents.
J. C. WHEELER PLANO, ILL.
11-15db

AND DON'T YOU FORGET IT

I TELL you what, Jones, **Levering Bros.** sell the best goods and at the lowest price of any one I've struck yet. The largest and best equipped

Bee - Hive Factory

in the West. The Dovetailed Hive and New Hoffman self - spacing Frame a specialty. Every thing used by practical bee-keepers at wholesale and retail. Send for their free Illustrated Price List, and save money. Supply Dealers, send for their Wholesale List. Address

LEVERING BROS.,
6-15db **Wiota, Cass Co., Iowa.**
Please mention this paper.

Sections at $3 per 1000. These are perfectly smooth, and first-class. Brood foundation 45 cts. per lb. All supplies equally low. Goods shipped direct from New York city. 1-18dt.

I. J. STRINGHAM,
92 Barclay St., N. Y.
☞In responding to this advertisement mention GLEANINGS.

ITALIAN QUEENS. Tested, $1.25. Untested, 75c. MRS. A. M. KNEELAND,
P. O. Box 77. Mulberry Grove, Bond Co., Ill.

UNTESTED ITALIAN QUEENS.
From best imported stock, 50c each; ½ doz., $2.75. Circular free. Safe arrival and satisfaction guaranteed.
H. G. QUIRIN, BELLEVUE, HURON CO., O.
☞In responding to this advertisement mention GLEANINGS.

Italian Bees and Queens For Sale.

Untested queens, $1.00; tested, $1.50. Bees, $1.00 per lb. Colony, $5.00. Also barred Plymouth Rock eggs for sitting, $1.00 per 13.
7-16db MRS. A. A. SIMPSON, Swarts, Pa.
☞In responding to this advertisemen [illegible]

IMPORTED QUEENS.

In May and June, each	$2.00
In July and August, each	1.80
In September and October, each	1.60

Money must be sent in advance. Safe arrival guaranteed. Queens that die en route, if returned in the letter, will be replaced by mail, postpaid. No order for less than 8 queens *by express* will be accepted.

E. BIANCONCINI,
1-tfd **Bologna, Italy.**
Please mention this paper. 7d

OTTUMWA BEE-HIVE FACTORY.

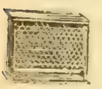
Bee-keepers, look to your interests. Every thing in the line of bee-supplies constantly on hand. Price list free. **GREGORY BROS. & SON,**
1-12d Ottumwa, Ia. South side.
☞In responding to this advertisement mention GLEANINGS.

PATENT WIRED COMB FOUNDATION

HAS NO SAG IN BROOD-FRAMES.

THIN FLAT - BOTTOM FOUNDATION

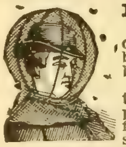
Has No Fish-bone in Surplus Honey.



Being the cleanest is usually worked the quickest of any Foundation made.

J. VAN DEUSEN & SONS,
Sole Manufacturers, 5tfd
Sprout Brook, Montgomery Co., N. Y.
Please mention this paper.

GLOBE BEE-VEIL



By Mail for $1.00.

A center rivet holds 5 spring-steel cross-bars like a globe to support the bobinet Veil. These button to a neat brass neck-band, holding it firmly. It is easily put together; no trouble to put on, or take off. An absolute protection against any insect that flies. Will go over any ordinary sized hat; can be worn in bed without discomfort; fits any head; does not obstruct the vision; folds compactly, and can be carried in the pocket; in short, it is invaluable to any one whom flies bother, mosquitos bite, or bees sting.

Extra Nets, 50 Cents Each.

THOMAS G. NEWMAN & SON,
199 Randolph St., Chicago, Ill.
Please mention this paper.

Bee - Keepers' ❋ Supplies.

We are prepared to furnish bee-keepers with supplies promptly and at lowest rates. Estimates gladly furnished, and correspondence solicited. Our goods are all first-class in quality and workmanship. *Catalogue sent free.* Reference, First National Bank, Sterling, Ill. Address 1-24db

WM. McCUNE & CO.,
Sterling, Illinois.
☞In respondin [illegible] ntion GLEANINGS.

DO YOU WANT

Good, gentle, and prolific bees? Then get an Albino (or white-banded Italian) queen. Catalogue free.
5tfd A. L. KILDOW, Sheffield, Illinois.
☞In responding to this advertisement mention GLEANINGS.

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5 CTS. will get a sample cage of my 5-banded bees; 1 untested 3-banded, 60c; six for $3.00; 1 5-banded, 75c; six for $4.25. Full colonies, nuclei, and supplies cheap; catalogue free.
12tfdb **CHAS. H. THIES, Steeleville, Ill.**
Please mention this paper

---

500 Colonies of Bees Devoted to Queen-Rearing.

Write for prices on large quantities.

TWO MILLION SNOW - WHITE SECTIONS.

Write for prices on large quantities.

Send for our 24-Page Catalogue of Dovetailed Hives, Smokers, Extractors, Etc.

LEAHY M'F'G CO., Higginsville, Missouri.
Please mention this paper. 5tfdb

IMPORTED ITALIAN QUEENS, $3 25; UNTESTED, 50c.
12tfdb W. C. FRAZIER, Atlantic, Iowa.

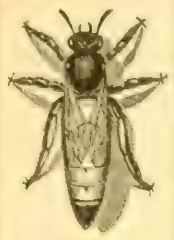
TAKE NOTICE!

BEFORE placing your orders for SUPPLIES, write for prices on One-Piece Basswood Sections, Bee-Hives, Shipping-Crates, Frames, Foundation, Smokers, etc. PAGE & KEITH,
14tfdb New London, Wis.
Please mention this paper.

LITHOGRAPH LABELS

In 12 Colors, at $2.00 per 1000.

The 12 colors are all on each label. They are oblong in shape, measuring 2⅛x2⅝. They are about the nicest labels we ever saw for glass tumblers, pails, and small packages of honey. We will mail a sample, inclosed in our label catalogue, free on application, and will furnish them postpaid at the following prices: 5 cts. for 10; 25 cts. for 100; $1.00 for 500; $1.75 for 1000. A. I. ROOT Medina, O.,



CAUSE.

80 LBS. PER COLONY

is the record of three of our golden queens, with several others not far behind, while the best record of any other race is 42 lbs from 3-banded bees.

We are making a specialty of these beauties for business, and are so sure that they will please you that we guarantee them to give

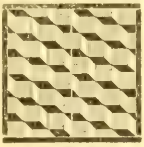
ENTIRE SATISFACTION,

or we will return your money. Could you ask more?

These bees are not banded, but are all yellow on the first four scales, and the fifth is part yellow with an occasional bee with a little yellow on the sixth scale. The above honey record is of white clover in 1-lb. sec's, worth $12 in our market today. No drones near us but the yellowest. One warranted queen, $1; six for $5.

Reference: A. I. Root.

S. F. & I. TRECO,
Swedona, Ill.



EFFECT.

☞In responding to this advertisement mention GLEANINGS.

Best on Earth.

More than one hundred thousand Bingham & Hetherington Honey-knives and Bee-smokers in daily use. Illustrations sent free.

Bingham & Hetherington,
Abronia, Mich.

PAINT FOR BEE-HIVES.

After much experimentation, and a careful study into the paint question, we offer a mixed

Paint Prepared Especially for Bee-Hives. It will not Chalk or Flake off.

We guarantee it to be free from adulterants, such as whiting, barytes, lime, and other substitutes that do not add to the enduring qualities of the paint. Our paint is made of strictly pure lead, strictly pure zinc, and genuine French ocher of about equal proportions, mixed in pure linseed oil. It is generally recognized that there is no pigment more permanent than French ocher; and this, combined with zinc and lead, makes a most durable combination. The resultant tint is a pale straw color. Price: Pint, 35c; quart, 60c; half-gallon, $1.00; gallon, $1.75. Half a gallon will cover ten No. 1 Dovetailed hives two coats.

A. I. ROOT, Medina, O.

HONEY COLUMN.

CITY MARKETS.

NEW YORK. *Honey.* Demand for comb honey at a standstill; extracted, moving very slowly. Markets on above, Southern, 60@70c per gallon, according to quality; clover, 6½@7; buckwheat, 5@5½. *Beeswax*, demand moderate, 25@27.

July 22. CHAS. ISRAEL & BRO.,
110 Hudson St., New York.

SAN FRANCISCO.—*Honey.*—Our honey crop this year is very light. We quote to-day: White, 6½; light amber, 6@6¼; comb, 1-lb. white, 10@11; amber, and dark, 1 and 2 lb., 7@9. Stocks of comb honey ample for all requirements; demand very light.

July 12. SCHACHT, LEMKE & STEINER,
San Francisco, Cal.

CHICAGO.—*Honey.* Market is very dull just now; it is the fruit season, and peaches are beginning to come in freely, as also the blueberries and other small fruits. Comb honey ranges from 10@15; extracted, 6@7@8. *Beeswax*, 25@26

R. A. BURNETT,
July 19. 161 So. Water St., Chicago, Ill.

DETROIT.—*Honey.*—The market is bare of choice comb honey. New would bring 12½@13; extracted, 7@8. *Beeswax*, 24@25.

July 20. M. H. HUNT,
Bell Branch, Mich.

ALBANY.—*Honey.*—We have received no new comb honey yet; but parties have written us that they will forward some in a few days. We can not tell what price it will start off at before next issue. Extracted moving slowly at 6@8. *Beeswax*, 25@26.

July 20. CHAS. MCCULLOCH & CO.,
393, 395, 397 Broadway, Albany, N. Y.

KANSAS CITY.—*Honey.*—We have received a number of shipments of new honey, same selling at 16c. for 1-lb. white comb.

July 21. HAMBLIN & BEARSS,
514 Walnut St., Kansas City, Mo.

KANSAS CITY.—*Honey.*—New comb arriving, selling at 16c for 1-lb. comb; old all cleaned up. Extracted, 7@7½ for white. *Beeswax*, 20@25.

July 20. CLEMONS-MASON COM. CO.,
Kansas City, Mo.

ST. LOUIS.—*Honey.*—Market more active on extracted. Receipts liberal. We quote: Dark, in barrels, 4⅞@5; light, 5¼@5¾. No demand for comb except choice white, at 16@18. *Beeswax*, 26.

July 22. D. G. TUTT GRO. CO.,

WANTED.—One hundred thousand pounds choice comb and extracted honey. Name source from which your honey is gathered. Mail samples at once and quote prices. 13tfdb

J. A. BUCHANAN & SONS, Holliday's Cove, W. Va.

WANTED.—Best grade of comb and extracted honey. WALTER S. POUDER, Indianapolis, Ind. 15-16d

FOR SALE.

At $4.00 per colony; 20 colonies of Italian bees in 1½-story Dovetailed hives. H. BENNETT,
14-15d Union Furnace, Hocking Co., O.

Cash for Beeswax!

Will pay 23c per lb. cash, or 26c in trade for any quantity of good, fair, average beeswax, delivered at our R. R. station. The same will be sold to those who wish to purchase, at 29c per lb., or 33c for *best selected wax.*

Unless you put your name *on the box*, and notify us by mail of amount sent, I can not hold myself responsible for mistakes. It will not pay as a general thing to send wax by *express.*

A. I. ROOT, Medina, Ohio

The Bee-Keepers' REVIEW For 1892 and a Fine, Young, Laying Italian **QUEEN** for $1.50. The Review Alone, $1.00. The Queen Alone, 75 Cts. For $1.75, the Review, the Queen, and the 50 ct. Book, "Advanced Bee Culture," will be sent. W. Z. Hutchinson, Flint, Mich.

P. S.—If not acquainted with the REVIEW. send ten cents for three late but different issues.

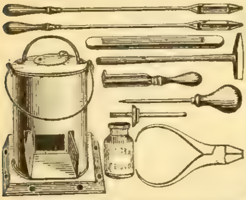
DR. J. W. CRENSHAW, Versailles, - Kentucky,

Offers for Sale

Untested Italian Queens at $1.00 each through May and June; after, 75c each. Safe arrival guaranteed. Queens raised only from Imported mother. Drones only from selected and tested mothers.

Also CELERY PLANTS from July to September, at $2.00 per M. 7-18db

☞In responding to this advertisement mention GLEANINGS.



OATMAN'S SOLDERING AND REPAIR KIT

Consists of fire-pot, soldering-irons, solder, and soldering-fluid, with tools compl'te as shown in cut, with directions for soldering different metals, and how to keep your soldering-irons in shape. Whole kit, boxed, 12 lbs. Shipped on receipt of $2.00. Agents wanted.

8-7db **O. & L. OATMAN, Medina, Ohio.**

☞In responding to this advertisement mention GLEANINGS

QUEENS FREE!

Italians, untested, 70 cts. Warranted, 80 cts. Tested, $1.00. **One Choice Breeder Given Away** with each dozen. **Five-Banded Golden Queens, $1 to $2.** Write for lower prices. Satisfaction guaranteed. Bees, 80c per lb. **F. C. MORROW, Wallaceburg, Ark.**

Please mention this paper. 10tfdb

BEE SUPPLIES RETAIL —AND— WHOLESALE.

Everything used in the **Apiary.** Greatest variety and **largest** stock in the West. New catalog, **54** illustrated pages, free to bee-keepers. **E. KRETCHMER, RED OAK, IOWA.**

Please mention this paper. 2tfdb

SAVE MONEY.—Send to J. P. H. Brown, Augusta, Georgia, for his price list of supplies. Hives and foundation at wholesale rates. 4tfdb

QUIGLEY'S GOLDEN QUEENS.

Are large, beautiful, and prolific. The bees are industrious, gentle, and hardy. Warranted purely mated, each, $1.00; 6 for $5.00. Untested, each, 70c; 3 for $2.00. Satisfaction and safe arrival guaranteed. Circular free.

14tfdb E. F. QUIGLEY, Unionville, Mo

5-BANDED ITALIANS

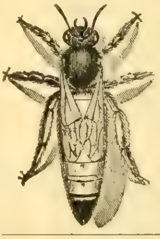
In Root's Simplicity Hives, Wired Frames, $3.50 Each.

W. HUSSEY, Mt. Pleasant, Ohio. 14-15d

PURE ITALIAN QUEENS.

Untested, 70c each; 3 for $1.75; 6 or more, 50c each. Tested queens, $1.00 each.

D. G. EDMISTON, Adrian, Lenawee Co., Mich.



WESTERN BEE-KEEPERS' SUPPLY HOUSE.

ROOT'S GOODS can be had at Des Moines, Iowa, at ROOT'S PRICES. The largest supply business in the West. Established 1885. Dovetailed Hives, Sections, Foundation, Extractors, Smokers, Veils, Crates, Feeders, Clover Seeds, etc. Imported Italian Queens. Queens and Bees. Sample copy of our Bee Journal, "THE WESTERN BEE-KEEPER," and LATEST CATALOGUE mailed FREE to Bee-keepers.

JOSEPH NYSEWANDER, Des Moines, Iowa.

EXTRA FINE QUEENS.

Now is the time to introduce a strain of Italians that will reap you large harvests even in poor seasons. Send a trial order and be convinced. Queens warranted purely mated, each, 80c; six, $4.00; doz., $7.00. Order now; pay on arrival. Safe arrival and satisfaction guaranteed. *F. B. YOCKEY, North Washington, West'd Co., Pa.*

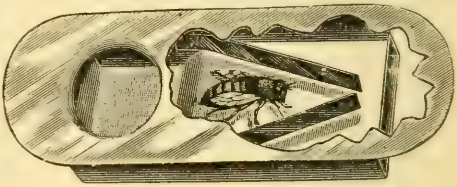
Please mention this paper.

Porter's Spring Bee-Escape.

We guarantee it to be the best escape known, and far superior to all others. If, on trial of from one to a dozen, you do not find them so, or if they do not prove satisfactory in every way, return them by mail within 90 days after receipt, and we will refund your money.

PRICES:—Each, by mail, postpaid, with full directions, 20c; per dozen, $2.25. Send for circular and testimonials. Supply dealers, send for wholesale prices.

10tfdb *R. & E. C. PORTER, LEWISTOWN, ILL.*



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The Weekly "American Bee Journal" ❊

——32 pages—$1.00 a Year——

The Oldest, Largest, Best and Only Weekly Bee-Paper in America. Sample Copy Free

The American Bee Journal,

Address **GEORGE W. YORK & CO.,**
❊ 199 Randolph St., - CHICAGO, ILLS.

GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS

ILLUSTRATED SEMI-MONTHLY

PUBLISHED BY A. I. ROOT

$1.00 PER YEAR MEDINA OHIO

Vol. XX. AUG. 1, 1892. No. 15.

STRAY STRAWS

FROM DR. C. C. MILLER.

A START, at least, making in supers. Whoopee!

WHITE CLOVER is not a flood, but I'm thankful for even a moderate yield.

I RECEIVED one of Alley's self-hivers, and not a swarm has gone off since.

LOOKS as if Prof. Wiley and the bee-keepers would yet be the best of friends.

DO LAYING WORKERS ever exist in a hive where you find sealed worker brood?

YOUR LINDENS at Medina are smarter than they are at Marengo. July 16 showed the first bloom here.

UP IN CANADA there has been much opposition to wired frames, but there are some signs of weakening on the part of the opposition.

DO BEES INJURE crops by working on the blossoms? is a question still asked sometimes. Change just one letter, and you have it: Bees do not injure but insure crops.

YORK, of the *A. B. J.*, won't dare commit any crime, for his picture is getting into all the journals so much that he'd be detected and identified wherever he sought safety in flight.

LOSING BEES so heavily has given me time to hoe a little in the garden and rose-beds; and if I had a little more time I'm afraid I'd get as crazy about working in the dirt as A. I. Root.

A STEEL TRAP is what I'm going to set in my straw-patch for Rambler. Just look at him on page 546! He's lugged off a lot of my best straws, and then labeled them "California Straws."

"SOMEHOW the bees have decided notions of their own," says C. H. Dibbern, "and will often persistently refuse to do the very thing we think they ought to do"—the very same trouble I have with my bees.

DOES "RAKING" presage swarming? Now is the time to watch and report. It seems to me I have seen bees "raking" at the entrance after the harvest and all swarming was over, but I may be mistaken.

BEE-KEEPERS who have out-apiaries are specially interested in the agitation arising over the subject of good roads. They say that, as a nation, we're away behind in the matter of roads. It's a coming topic.

ITALIANS SWARM sometimes, we are told, without having queen-cells started. Now, do they, really? Did you ever know of a case where the colony had not been meddled with? Hadn't cells been previously removed? And might not blacks swarm without queen-cells if you kept cutting them out?

MRS. WOODMAN thinks her cure for sour stomach beats mine. She was cured, "not by taking medicines of any kind, but by *not* taking tea or coffee, simply hot water and milk, half and half," and the change in health was such a blessing she wants others to know of it.

BLACK BEES, some claim, are as good as Italians, if they have the same care and attention in developing a good strain. S. E. Miller, in *A. B. J.*, makes a good point against such by asking why they don't give the proper care and attention, and produce a superior strain of blacks.

MILKWEED, L. Posey reports in *A. B. J.*, is avoided by black bees, while the Italians do a big business on it. Prof. T. J. Burrill says Italians seem strong enough to escape, while the blacks would be caught, and raises the question whether the blacks may not have learned to avoid the plant on that account.

TO-DAY, JULY 20, honey shook out of the combs very plentifully; and yet a comb with a little honey in it standing unprotected a few minutes started the robbers fiercely—something I think I never saw before. Was it because, not many days ago, the same bees were fed by allowing them to rob out sections standing out?

AN OREGON WOMAN thinks the horses in California have a queer way of moving their feet when they walk, as she thinks that horse of Rambler's is doing on page 507. Why, bless your heart, Mrs. W., you don't suppose Rambler would think of poking along at a walk on a bit of road no rougher than that? That horse is a fast pacer.

EDITOR ALLEY says he tried my plan of raising queen-cells in a lower story, having queen above and quilt between. He failed, and now he wants some one to report success so as to save my credit. Don't worry about my credit, Henry. It's good for what flour and bacon I'll need for a year, and may be I'll get a crop next year.

POURING FEED into the entrance of hives with tight bottoms is practiced by some, and highly commended. I formerly fed many pounds in that way, and liked it much. But I began to notice, that, after a colony was thus fed, a good many dead bees would be found carried out, and I gave up the plan. Whether the bees were drowned, or what caused their death, I could not determine.

NEW COMB is often built that is quite dark. A writer in *B. B. J.* thinks his bees found some old comb in an attic, and carried it into the hive to make this brown comb. I doubt it. When not storing rapidly I think they often take old comb where it is in extra quantity in their own hive, and build afresh where they want it. I've had sections capped dark when facing old brood comb, even when the harvest was flush.

Young queens pulled out of their cells and introduced with success is the theme of an item in the French *Revue*. We call them "pulled queens" at our house, and have used them for several years. Just tear open a queen-cell; and if the young queen is strong enough to hold on to the comb she will be kindly received almost anywhere by merely placing her on the comb among the bees. Friend Root was quite interested on seeing us use "pulled queens" on one of his visits here.

MY HEAD-TROUBLE.

L. L. LANGSTROTH DESCRIBES THAT PECULIAR FORM OF MELANCHOLIA THAT HAS DISTRESSED HIM AT TIMES FOR MANY YEARS.

For many years, as most of your readers know, I have suffered from what I have been wont to call "my head-trouble," which not only unfits me for mental exertion, but also disqualifies me for enjoying almost any thing personal to myself. While under its full power, the things in which I usually take the greatest pleasure are the very ones which distress me most. I not only lose all interest in bees, but prefer to sit, when they are flying, on that side of the house where I can neither hear nor see them. Gladly, if at all convenient, would I have my library of bee-works hidden from my sight; and often I have been so morbid that even the sight of a big letter B would painfully affect me. At such times, fearful of losing my reason if I allowed my mind to prey upon itself, I have resorted to almost constant reading to divert my thoughts. The great objection to this is, that it not only fails to interest me when I am the most unwell, but, by association of ideas, too often deepens my distress. To use the words of the old poet Herbert,—

> My thoughts like case-knives are;
> They pierce me to the heart.

I have, therefore, for years, read less and less, and occupied my time mainly with chess, which is too impersonal to suggest the melancholy ideas which so often torment me when reading. As soon as I awake I try, by chess problems, the most intricate that I can find or invent, to forestall the approach of gloomy thoughts, continuing to play as though a fortune could be made by it, or as if I were playing for my very life; and often, during the large part of the night, my brain seems to be incessantly moving and supervising the pieces on the chess-board.[*]

Methinks I hear some of my readers exclaim, "Can this be the condition of a minister of the gospel of Christ? Ought not the blessed promises of God's word always to enable him to attain, in some measure at least, to the apostle's experience when he said, 'Now the *God of hope fill* you with *joy* and *peace* in believing, and make you to abound in hope, by the power of the Holy Ghost'?" No! no! God has not promised to overrule his natural laws by constant miraculous interposition. Can you give a wholesome appetite for food to a person intensely nauseated, by merely showing it to him and inviting him to sit down and partake of it? He knows that the food spread before him is good; but can this knowledge give him an appetite for it? It is a great help, doubtless, even under the most depressing circumstances, to know that God is good, and to hope that, in due time, the dark side of the picture will be turned from us, and its bright one again be displayed. This hope often sustains us when otherwise we might be utterly cast down.

Read the 42d and 43d Psalm, if you doubt what I affirm.

"My tears have been my meat day and night, while they continually say, Where is thy God?" (The Psalmist undoubtedly had in mind those who say, "Of what worth is a religion which can leave a believer so despondent?") "When I remember these things, I pour out my soul in me; for I had gone with the multitude, I went with them to the house of God, with the voice of joy and praise; why art thou cast down, O my soul, and why art thou disquieted within me? Hope thou in God, for I shall yet praise him for the help of his countenance. O my God, my soul *is cast down within me.* Deep calleth unto deep, at the noise of thy waterspouts. All thy waves and thy billows have gone over me. Why art thou cast down, O my soul? Hope thou in God; for I shall yet praise him who is the help of my countenance and my God." *Not now! oh, not now! but I shall yet praise him.* "Oh send out thy light and thy truth! Let them lead me; let them bring me to thy holy hill and to thy tabernacles. Then will I go unto the altar of God, unto God, my exceeding joy. Yea, upon the harp will I praise thee, O God my God!"

In the 30th Psalm we have the experience of one who, out of the deepest depression, had been raised to the heights of joy and gladness. "O God, my God, I cried unto thee, and thou hast delivered me! Thou hast brought up my soul from the grave. Sing unto the Lord, all ye saints, at the remembrance of his holiness; for his anger endureth but a moment, and in his favor is life. Weeping may endure for a night, but joy cometh in the morning. Thou hast turned my mourning into dancing. Thou hast put off my sackcloth, and girded me with gladness."

If further confirmation is needed, see the book of Job, the 3d chapter especially, when, in the profoundest depths of depression, he even cursed the day in which he was born. "Wherefore is light given to him that is in misery, and life unto the bitter in soul, which long for death, but it cometh not; which are glad when they can find the grave? Why is light given to a man whose way is hid, and whom God hath hedged in?"

I quote so largely from the blessed book, because I hope that some of my readers, almost overpowered by gloomy forebodings, may find help, and much more, from my own personal experiences, and from their confirmation by God's word. Of the Psalms in particular, it is evident that all of them which express our strongest emotions could have been born only out of deep, personal experience; some,

> "When gladness wings our favorite hours;"

others, when we are almost disposed to repeat that anguished cry of our Savior, "My God! my God! why hast *thou* forsaken me?" Only thus originating could they have lived in the memory of man for so many ages. As in water face answereth unto face, so the heart of man, and I earnestly hope that some afflicted brother or sister who has been crying out, "All thy waves and all thy billows have gone over me," may be helped by this recital of my sufferings, and much more helped by realizing that the great Father of our spirits, who pitieth his children, who knoweth their frame, and who remembereth that they are dust, has caused special Psalms to be written, even for them.

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[*] I *very* seldom play with any antagonist—on an average, not as often as once a year, lest I should abuse their time.

To resume the description of my own experience:

I entered Yale College in my 17th year; and can remember that, even before that time, I had times when I lost my usual interest in my studies. Twice, in college, they were entirely suspended; but neither my parents nor myself, at that time, had any idea of what was the matter with me.

While tutor of mathematics at Yale, from 1834 to '36, I was similarly affected; so, also, when pastor of the old South Congregational Church in Andover, Mass.

I was at last compelled to resign my pastorate, and became principal, successively of the Abbott Female Seminary, and the Highschool for young ladies, at Greenfield, Mass., and afterward accepted the charge of the Second Greenfield Congregational Church. During the latter part of this charge I made many of my sermons on foot, walking long distances, and trying by severe exercise to get the better of the incipient attacks. Never, however, was I able to effect this. An attack might be of longer or shorter duration before it prostrated me; but it always had but one issue. Struggle as I would, fight as I could against it, my condition was that of the man lost in the quicksands, so vividly described by Victor Hugo. Walking carelessly over its treacherous surface, he first notices that his freedom of movement is somewhat impaired; but he thinks little of this until he finds it more and more difficult to lift his feet. Alarmed at last, he vainly tries to escape to the firmer land, only to find that each step that he takes sinks him deeper and deeper, until the engulfing sands reach his lips, and his shrieks of agony are stilled. His head disappears; only the faint motion of a sinking hand is visible, and soon every trace of him disappears for ever.

The first light thrown upon my case was by a German physician who told me that my brain troubles were caused by blind piles; but he failed to cure me.

I shall never forget the remark of an electric physician, who, in 1853, while passing his hand over my neck, exclaimed, "How can a man with the flesh over his spine, in such a rigid condition, be otherwise than miserable!" This was the first time that my attention was called to the abnormal congestion of the flesh over the whole length of my spinal column. "You will be happy," said he, "as soon as I relieve you of this congestive condition." He worked upon my spinal column at intervals for several hours a day, rubbing and kneading it, much as they do in the massage treatment, all the while passing a current of electricity through his own body into mine, till at last he effected what seemed to be a perfect cure. He died before I could avail myself of another treatment.

So intimate is the connection between this rigidity and my mental depression, that they are never dissociated; but in vain have I called the attention of able physicians to this feature of my case. When it began to develop they never succeeded in arresting it.

While a considerable time, often several months, elapsed from the time I could first perceive that another attack was coming on, recovery from these attacks has almost always been very rapid. Let me describe my recovery from my last attack, which had lasted over three years. In the winter of 1891 I suffered from grip, complicated with other dangerous symptoms. Our change of residence in Dayton, in April last, seemed to my daughter to give me considerable relief, although I was not myself assured that I was substantially better. In walking to church on the morning of the 17th I stopped for a moment to notice the bees working on the fruit-blossoms. If the worst of the attack had not been over, instead of stopping I should have given the bees a wide circuit to avoid the sight of them. The next day I retired to my room after breakfast, to get, if possible more sleep. In my diseased state my sleep is so poor that I often spend at least twice as many hours in bed as when well.*

My mind became unusually active; my thoughts darted with great rapidity from one subject to another, when, almost, instantaneously, the oppressive burden of gloom seemed to be lifted from me, and I cried out in joyful ecstacy, "O blessed Father! I shall be well again." From long experience I recognized the usual signs of a recovery, which I might hope would last for half a year, a whole year, or possibly a year and a half. When this change comes, an electrical thrill seems to pass through my hands, extending itself to the very tips of my fingers, just as though something like quicksilver were forcing itself through them for an exit. At times this sensation is so powerful as to be quite painful. I never have these symptoms except when I am free, or soon about to be, from the head-trouble.

And now begins a period of mental activity and intense enjoyment. My dear wife used to say, "Although you have been a great sufferer at least half of your life since I first knew you, yet none of my acquaintances seems to have got so much enjoyment out of life as you; for when you are happy you are so intensely happy." To this I once replied, "I could wish that this happiness might be spread a little thinner, if only it could thus be made to last a great deal longer." My mind now seems to work with almost lightning-like rapidity, and I feel as though I could keep many persons busy, in merely writing out my thoughts. Every one to whom I try to explain myself, or whom I ask to execute my directions, seems to catch my thoughts, or to obey me, so slowly that with great difficulty can I repress my impatience; and often I can hardly refrain from seizing hold of them to push them into swifter execution. In the night my brain is disposed to work as it were double tides, until I quite wear myself out.

We read of intermittent springs which discharge no water until they are full enough for a syphon arrangement. Then they gush forth and flow until entirely empty, to remain quiescent until they are full again. After long depression, seldom speaking unless personally addressed, shutting myself up in my room,† I seem to act as though I had been cheated out of my legitimate amount of talk, and must make up for lost time by uttering as much in a few days as any reasonable person ought to say in as many months. I am sensible that this exuberance is often so great as to be oppressive to my friends; but I do not despair, although over 81 years of age, of learning to control it better. Sometimes, however, it seems to have its advantages; for after I have given scarcely a willing thought to any thing connected with bees, for a year or more at a time, I have, in a very short time, regained my position in the mass of inventors, and often been able to keep step with those who have never been forced to leave the ranks.

Dayton, Ohio, July 4. L. L. LANGSTROTH.

To be continued.

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* Had it occurred to any of them to try the *Moxa* cauterizing of my spine, by which Dr. Brown-Sequard cured Senator Sumner, it might have succeeded.

† Ps. 88:8. *I am shut up; I can not come forth.*

No commentator, so far as I know, seems to me to have apprehended the full meaning of these words. Only profound *melancholia* can adequately interpret them.

LARGE ITALIAN BEES.

AN ACCOUNT OF A STRAIN THAT CAME FROM IMPORTED ITALIANS.

Mr. Root:—By this mail I send you a sample of my bees. They are the result of a queen from you about eleven years ago, and the careful breeding of the same during all that time. Located as I am away from hummocks and all wild bees, I have had no trouble in keeping them strictly pure Italians. When I came here from the North I was informed that it was no use to try bees here, for all would die. At first it did seem so, for all they would make was consumed by the bees. In two or three years they did much better, and gave us some honey; and now we get from 75 to 150 lbs. of comb honey per stand, and the hive the sample is taken from made, during March, 63 lbs. of the finest and fairest orange-blossom honey I have ever seen, as it is almost clear orange-bloom. To say they are all business, is putting the claim very moderately. There is no doubt that you sent me the purest stock to begin with that it is possible to find; and this by careful selection has brought about such wonderful results.

Early in my experience with bees I had a very impressive lesson on the need of selection, when I had only five colonies. One of these had in all not more than a quart of bees, and had not really kept to the size of the original swarm, and only two or three pounds of honey, while all others had ten L. frames pretty well filled with brood and honey. Not long after this I found one that seemed to devote all its time to raising drones, and swarming. It swarmed till the effort was no larger than one's fist, and all that seemed to be left in the hive were drones. These I trapped out and killed the queen, then gave them a frame of young brood and eggs from my brag hive, and in an astonishingly short time they were as good as any in my apiary. I hived 27 during March, and those that came early have filled eight and nine frames, all of orange; and when it is capped over it is surely as white as this paper. The strange feature about my bees is their size. How this came about (if it really is so, and I think you will say "*how big*" when you have compared them with others), I will leave to tell at another time. Aware of their large size, I sent to quite a number of our brethren north for samples. The heaviest came from friend Frazier, from Iowa, and the lightest came from the "Home of the Honey-bees." They were of the bronze type, and the strongest marked I ever saw; 15 of them weighed 17⅛ grs. troy, and 15 of Mr. F.'s went to $23\frac{3}{16}$ grs. The same number of mine went to $38\frac{5}{16}$ grs. All were fed or offered all the honey they wanted, for an hour before being weighed. Might not the worry of a long confinement, and being knocked about in a mail-bag, make much of the difference? I have sent you these to test the matter; and having heard of bees that would work on red clover, my conclusions were that they were large, with proportionately long tongues that enabled them to reach to the place in the bloom where the nectar was secreted.

If I am right in my deductions, I will send a queen or two to some one in a red-clover region the coming summer to test their ability in that particular industry. There is no question about their being hustlers here when it comes to gathering in the sweets. What they might do with you is more than I am able to say, as I have never offered, sold, nor sent, one north.

My bees have never been troubled with any disease, which induces me to ask if bees in the South are subject to foul brood. I have never heard of its being in the State.

Please tell us what you think of their size, and whether, in your opinion, they would be a success as honey-gatherers on red clover.

J. Pierrpont Murdock.

Oxford, Fla., Apr. 5.

[The bees sent to us were extra large, even after having been on a journey for several days—a condition that is apt to make all bees look smaller than their wont. This queen came from our imported stock, and was selected, not so much for color as for gentleness of her stock, and general good working qualities. Some day there will be a louder demand for bees of business vim and gentleness, without regard to color. We can't say how they would do on red clover.]

A LETTER FROM CUBA.

A REMARKABLE INCREASE FROM ONE COLONY.

My friends Dr. Warner and Mr. Somerford have suggested to me that my experience in starting an apiary might be worth reporting to you. As an indication of the possibilities of bee-keeping here in Cuba, doubtless it is; but when I look back in the light of the experience gained, and see how much better I might have done, I don't feel that it is any thing to be proud of. Summarized briefly, the increase from one colony had amounted in 18 months to over 30 colonies, and these had produced 7240 lbs. of honey.

Our friend Dr. Warner has an apiary, and my better half thought it would be nice to have a hive of bees up on our azotea (flat tile roof), and I made no objection. The colony of bees came in December, 1890, the queen having begun laying Nov. 16th. It was my wife's affair; but as she happened to be away the first time our friend came to open the hive and attend to the bees, I assisted and thought it rather interesting. I attended to them myself the next time, and my interest grew, and we thought we should make five colonies, Dr. Warner having explained to us how to increase by dividing. Our experience (Mrs. L. got almost as deeply interested as I did) the next three months was doubtless very much that of most beginners. How cross those hybrids were! We got brood and cells from our friend's pure Italians, and were bound to have no other queens. By and by we forgot our limit of five colonies, and did not insist on purity of breed. We wanted *bees*, no matter what color. We got past the stage of gloves and armlets, and antidotes for stings, and concluded we would keep on until we had 20 hives. In August we had 26 colonies, and the fever (bee, not yellow fever) became so strong that we came near giving up our visit to the States, for the sake of staying to take care of the bees. We did not give it up, however, and were away three months (went to the Pacific coast, and followed the same route over which we have since accompanied Mr. Root with so much pleasure), leaving the bees to the care of our friend. He could not see them very frequently. A good many swarms went out; but when we returned in November we found on our azotea 32 hives, mostly with upper stories. This was exactly one year from the time the first queen began laying. We began extracting in December from 27 colonies, having lost one by accident; given away two, and placed sections on two. The bellflower lasted only until about Jan. 6, giving 230 gallons. This usually lasts until a month later. Romerillo (*Bidens leucanthus*) following, soon gave about as much more. This honey candies—the only honey produced in Cuba which does not remain liquid, so far as I know. Fruit and other blossoms produced some further surplus, but continued rains prevented us from obtaining more than half the mangrove flow; besides, I had sold eight of my best colonies before it began. My hives have nine frames, 13¼x13¼, in brood-chamber, and eight above. I began with ten frames below, spaced according to rule, but found better results with one less. My location is very favorable in one respect. About three-quarters of a mile distant are molasses storehouses: and when every thing else fails, the bees manage to scrape a living from the drainings of the hogsheads. This undoubtedly helped them through our two bad months, August and September. One circumstance, however, is unfavorable; and that is, our house is located on the edge of the bay, so that half of the area of the range is water.

The total amount of extracted honey was 7025 lbs.; comb honey, 215 lbs.; wax, 70 lbs. Of the 27 colonies, about two-thirds were strong; but all gave surplus in upper stories. Since beginning to extract I have permitted no increase until now, not intending to keep on with the apiary. I now propose to increase to 100; and if I get as good results per colony next season I will report again. One result I have still to mention—a fund of health and enjoyment from my work with the bees that I could have obtained here in no other way. B. W. LAW.

Havana, Cuba, July 1.

DOOLITTLE ON QUEEN-EXCLUDERS.

WHAT PART OF THE HIVE FIELD BEES STORE THEIR HONEY IN.

A correspondent writes, "According to page 116 of GLEANINGS, a correspondent of the *British Bee Journal* thinks that queen-excluders under the surplus-chambers are needed only at the front and back end, and a thin board over the rest. Is he right?" By turning to the page referred to, I see that this is taken from one of Dr. Miller's Stray Straws, and I will say that he voices my opinion exactly where he says, "Somehow I am afraid that the bees will not work quite so well over the board; and if he had said *I know*, instead of "I am afraid," I would have indorsed it just as quick. To be sure, I have known bees to go clear around division-boards and up into the cap of the hive, and go to building comb and storing honey there; but from close observation I am satisfied that, the more perfect the connection between the brood-apartment and the surplus arrangement, the more readily the bees start to work; and the quicker the bees start in the sections, the better the results in the number of pounds of honey.

"Very well," says one; "but if this is so, why do you recommend excluders at all? for the connection between the two apartments can not be as perfect with excluders as without them."

Probably this "one" is correct; but in reply I would say that it is not the largest number of pounds of honey that is always the most profitable to the apiarist; for if so, why not do as our fathers used to—hive our bees in barrels? Elisha Gallup once said that bees would store as much honey in a barrel or a nail-keg as anywhere; and I have no reason to dispute it. Ah! but honey stored in this way is not in marketable shape; and honey stored without queen-excluders, especially where the shallow frames are used, is not always in marketable shape, for thousands of sections have been spoiled for market by having brood in them where excluders were not used. I contend that more honey *in marketable shape* can be secured by the use of separators and excluders than can be without them; and this is the reason why I use them. That "bees don't go up through the middle of the brood-nest" I think a mistake on the part of our English friend; for certainly the most of the hives of our fathers allowed them to go up nowhere else, and they secured much surplus in that way, my father taking as much as 75 lbs. from a single new swarm with a two-inch hole from the center of the brood-chamber leading to the one surplus-apartment.

But the correspondent asks further: "If he should be wrong, does his theory not hold good concerning excluders that stand vertical?" I am using large frames, and have my honey stored at the sides. Now, when the bees march from the entrance toward the excluders do they not move along at the bottom of the hive? and do they not therefore go through the lower rows of zinc? If I am right, how many rows would be needed where the American frames are used?"

It is evident that our correspondent, as well as our English friend, is laboring under the delusion so often taught in the past, that the bee which gathers a load from the field must of necessity deposit that load in the surplus-receptacles. For this reason outside entrances were made at the top of the hive, to be opened when the harvest came, so the bees could go direct from the fields to the boxes, thus saving them that much of "foot weariness" and time, for it was too bad to have them traveling and being jostled all the way from the lower entrance up through the crowded hive in the dark when they could just as well go right from the field by daylight to the combs where they were to store the honey. However nice and poetical this appeared, the coming of the Italian bee virtually stopped up this upper entrance, for it was soon found that, when there were only black bees going in and out at the entrance, just before the Italians commenced to work in the fields, there were very few if any black bees in the sections; and a look through the glass showed these black laborers giving up their loads of honey to the young Italians upon their return from the fields, allowing these nimble-footed young fellows to run upstairs with the honey, taking the shortest and quickest way they could, whether at the top or bottom, front or back end, or *right through the center*. Moreover, it was ascertained that, unless there was a very large yield of honey, these young fellows held this honey in their honey-sacs, or deposited it in the brood-combs, right among the brood, wherever an empty cell was found, till it was sufficiently ripened to be stored in the sections or placed permanently in the combs. Bees have no paths staked out, nor lawns with "*keep off the grass*" notices posted up; but they do like to cluster with and about the brood, and deposit their honey above and around it; and the more this "like" is interfered with, the less will be the results in honey.

Another correspondent wishes me to tell which hatches first—a queen from a larva four days old, or one from a larva from 24 to 36 hours old. He seems to think that the queen would hatch first from the 24-hour larva, and, after quoting Mr. R. C. Aikin, in the *Review*, as saying that the queen from the 4-day larva would hatch first, says, "If this is as Aikin says, there is no such thing as the "survival of the fittest" in queen-rearing. Mr. Aikin is certainly right in saying that a queen from an old larva will hatch sooner than one from a young larva—that is, where both are started for queens at the same time; hence the chances are, that, where a queen is taken from a colony, and the bees are allowed to have their own way in rearing a queen, the first hatching queen will not be as good as those which would hatch a little later. But our correspondent must bear in mind that this has little to do with the "survival of the fittest," for this means where nature is allowed to have its own way; and in that case queens would be reared on the swarming plan, in which case queens are reared from the egg, or the larva is fed all its life on royal jelly. G. M. Doolittle.

Borodino, N. Y., July 16.

[We have noticed particularly, during the past summer, that frames of foundation would be drawn out and filled with raw nectar first at those ends next to the entrance, and that a little further on this nectar would be gone. This rather corroborates the facts presented by our close-observing correspondent.]

THAT OUTSIDE ROW

OF CELLS IN A SECTION.

A correspondent writes: "I have just taken off 300 lbs. of comb honey, snowy white, well filled, and nicely capped, save *one row* of cells next the wood. Later on, many of these will leak, which is worse than being travel-stained. How would it do to lift the super, put an empty super under, and let them stay on till the end of the season? or is it best to put the empty one on top?"

I confess that I do not feel very fully posted as to that outside row of cells. In the first place, I don't know what is the reason that one lot of sections has a row of unsealed cells next the wood, while another lot has no cells unsealed. I suspect it may be that a colony must be somewhat crowded for room before it will seal the outside row. If that be the case, it is possible that it might cost more than it would be worth, to force the bees, by crowding, to seal the outside row.

I am not certain just what you expect to gain by leaving the super on till the end of the season. If you expect thus to get the outside row of cells sealed, I am afraid you will be disappointed. So long as there is abundance of room in the second super, whether it be above or below, I should expect the outside row to remain unsealed. Even supposing that, by leaving the super on till the close of the season, the cells would be all sealed, I think the remedy would be worse than the disease, for I can not agree with you that it is necessary to have leaking cells, even though they are not sealed.

How, then, shall we manage these unsealed cells? I must admit, I have plenty of them every season, and yet I think it is a rare thing to have them leak. If the cells are empty it is pretty certain that they will not leak. I think mine are generally empty. When it is time to take off a super, if the bees act for you as they do for me they will empty nearly all those unsealed cells before they leave the super. Probably they do this on the same principle that they always act when afraid that every thing is to be taken from them; that is, they load up all the honey they can, so as to be ready for any emergency. Black bees, when frightened, are likely to tear holes in the cappings, but Italians seldom do. They take time to look around for cells that are already unsealed, and load up from them.

Whether they would do this when not at all frightened, as in the case of going down through a bee-escape, I do not know. But mine always get a pretty good dose of smoke before removal.

Even although honey should be left in the unsealed cells, it is not necessary to have it leak. It will not leak if thick enough; and if the sections are kept in a proper place the honey will become thicker instead of thinner; for I think I am safe in saying that honey must become thinner than it was before it left the hive before it will leak. If I am not mistaken, Mr. Doolittle depends almost entirely on the ripening of the honey in these unsealed cells to prevent leaking, laying great stress on keeping the honey for some time in a building painted a dark color so as to be heated by the sun, with a good circulation of air so as to encourage evaporation. Indeed, honey should be kept in some such place in any case. I never heard of any honey being ripened too much by it, but I have often known honey to be in bad condition for want of evaporation or ripening.

So I suspect that you will always have a good many unsealed cells in the row next the wood; but you can prevent their leaking, either by getting the bees to empty them or by evaporating them so they will not leak. You may ask whether there is any surety that such cells will not leak if kept in an improper place after they are evaporated. No, there is no surety against such a thing. Neither is there any surety against the sealed cells leaking. Put honey in a cool, damp place, where the unsealed cells will get to leaking, and it will require only a little time for the honey in the sealed cells to become thin and ooze through the cappings. I feel pretty sure, that, in any case where you have had the outside row of cells leak, if you should leave it long enough in the same place, honey would weep through the cappings.

ANTS IN HIVES.

You also ask for a remedy against small black ants in hives. Oh, yes! a liberal sprinkling of borax or common salt. But as I read further, I find you say you have tried this without effect. Well, it seems to me it worked with me, for in former years I had trouble galore with ants, sometimes the little ones like yours, not more than $\frac{3}{16}$ of an inch long, and also with the large ones. I don't know that they troubled the bees very much; but they did trouble me, crawling all over my hands and arms, and viciously biting me every time I opened the hive. Well, if borax and salt are of no use, couldn't you make your covers ant-proof, so that no ant can enter? for I don't think you will ever find the ants have an entrance through the hive where the bees are; they get in between the cover and the hive, and then stay only on top of the cloth.

But I'll tell you what has proved a perfect remedy with me; and that is, flat board covers without any sheet. You see in that case there is nowhere for the ants to have a nest without being right among the bees, and I don't think you ever found them nesting where the bees had free range. At any rate, I have never known ants in hives with flat board covers.

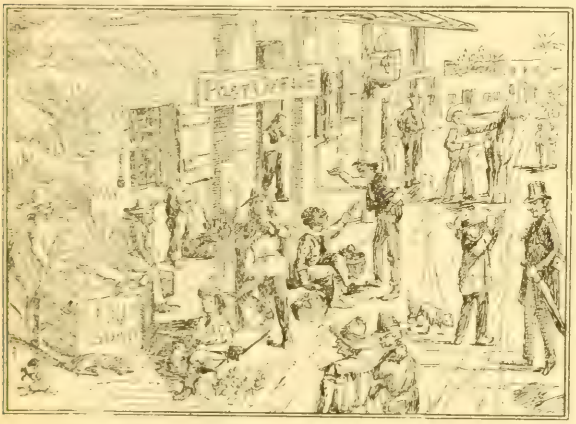
Marengo, Ill. C. C. Miller.

RAMBLE NO. 64.

IN THE ORANGE-GROVES; ORANGE-GROWERS SUBJECT TO THE BLUES AS WELL AS BEE KEEPERS.

After my pleasant experiences in Ventura Co. I returned again to San Bernardino Co., noted for being the largest county in the U. S., and also for being the banner fruit county of California. Its acreage of oranges alone is fully 20,000, and rapidly going up at that. It is also great in honey; but as to which county can bear the banner, the honey statistician has not as yet told us.

I entered the county in search of an apiary, and had that submissive spirit that, if I could not purchase, I would take the lowest round on the apicultural ladder and work my way up. Therefore, during the last week in December I rambled on the beautiful streets of Riverside, noted as the center of the citrus-growing belt of California. Riverside has a population of about 8000; has a Chinatown and Indian town, Mexican settlement, and the magnificent Magnolia Avenue, 150 feet wide and 20 miles in length, of which only about 10 miles is improved. The area of this city is the largest in the country, and, except in the business center, entire blocks are occupied by only one house and its surrounding orange-grove and ornamental shrubbery. This plan necessarily spreads the city to a great extent. The sidewalks in many places are shaded by orange-trees, and the golden fruit is sometimes literally kicked around under foot. The principal shade-tree is the pepper-tree, which forms a canopy over the walks, and the pendent fernlike leaves lightly brush the hat as we walk along. I had quite a vivid premonition that Riverside would be my home for a time, and the feeling was somewhat intensified when I found myself on the main business street in a group of humanity consisting of an Indian leaning against an awning post, and looking sad; two negroes chatting, and happily showing their ivories; a Mexican, nearly as dark-skinned, resting on a box, and evidently tired. Mexicans are noted for being tired; in fact, they were born tired. Then there was a light-complexioned Spaniard dismounting from his broncho. Coming down the street was a Chinaman in his national costume; several white men showing the characteristic features of as many nationalities were standing around; and, lastly, there was that fellow called the Rambler. It was a motley crowd, and such as you will often see in these far-western cities. Such a variety of human beings, I suppose, is necessary to carry on the various operations of fruit culture, for there is much hard labor connected therewith. For instance, to keep an orange-grove up to its best requires constant attention. It must be irrigated at least once a month, and also cultivated both ways and around the trees once a month, and sometimes twice. Then comes the trimming and the search for the destructive scale bug. The greatest damage, however, and against which there is no remedy, is from the cold grip of Jack Frost. In December last the mercury fell to 20° above zero. This was unusually cold for this climate, and the damage was measured by the hundreds of thousands of dollars, and that was why so many oranges were kicking around under foot. Orange culture, therefore, is not all smooth work, and the owner of a grove is subject to as heavy a fit of the blues as was ever a honey-producer.


THE MOTLEY CROWD IN RIVERSIDE, CAL.

The picking lasts two or three months, and here is where every one of our motley crowd finds employment. Any eastern bee-keeper desiring to produce oranges can purchase a five or ten acre grove 12 years old, and in full bearing, for the moderate sum of $2000 per acre; or unimproved land subject to irrigation, for $100 to $300 per acre. *Please give the Rambler due notice when you are coming, and he will try to care for you.*

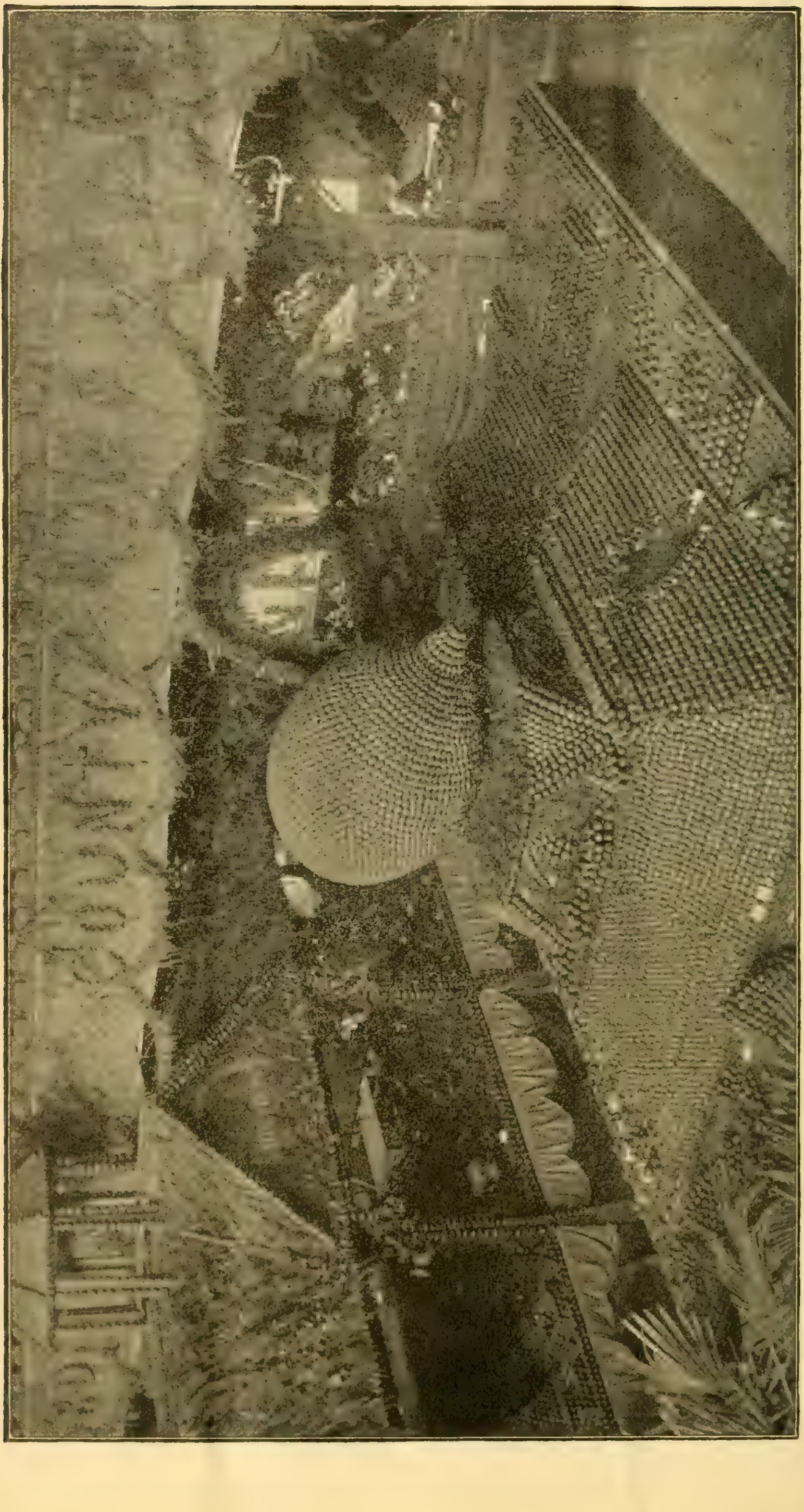
HONEY FROM ORANGE-TREES.

The chief interest a bee-keeper has, however, in an orange grove is the honey it produces. In March and April the blossoms come out in profusion, and the air is burdened with their fragrance. The odor is not unlike our old-fashioned lilac of the East. The blossom is slow to open, and not in a hurry to fall; it therefore gives the bee three or more weeks in which to collect the nectar. At present the orange area is not great as compared to sage and other flora; but in a few years, where there are now a thousand orange-trees within easy range of an apiary there will be tens of thousands, for the level sage lands are being reclaimed by irrigation, and planted to orange and other fruits. The bee works all day long on the orange-blossoms, and their busy hum rises so loud and earnest as to attract the attention of the most indifferent pedestrian; and although there is an abundance of honey obtained from the orange, there is much more sold in the markets than is obtained. Orange honey is considered rare, and pure orange-blossom honey is rare, from the small area in which it is gathered; but rarities are always sought after, and, of course, the average groceryman has not cultivated his conscience to that superlative degree that will prevent him from calling any nice honey "orange;" and I am somewhat skeptical about there being much purely orange honey shipped from this State, though there are tons of honey sold as such.

Usually in February or March the interest in the citrus culture reaches its culminating point in grand exhibits, and a citrus fair is worthy a long journey to see. All sorts of designs and lettering devices are worked out through the contrast in the color of oranges and lemons. The photo shows in some degree the novelty and beauty of a citrus fair in this semi-tropical climate, where huge lemons can be made if they can not be grown.

In some quiet corner is usually found an exhibit of honey, orange and otherwise, but it is quite overshadowed by the great citrus; and though there are enough bee-keepers in California, and the product, even in a poor season, is enough to make a creditable exhibit, I believe there has never been a special honey fair, and only occasionally a large exhibit at fairs in general.

Riverside has something of a local notoriety for the number of swarms of bees in residences, where, instead of being a benefit, they are nuisances. During a booming season, when absconding swarms are plentiful, they have



ORANGE AND LEMON EXHIBIT IN RIVERSIDE, CALIFORNIA.

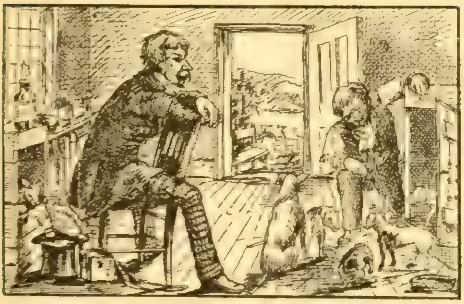
been known to enter unused chimneys and all imaginable spaces, large and small. It was during such a season that Mr. Chase, who came to Riverside with little means, went around taking these nuisances out of houses, and giving them hives. This plan, and putting up decoy hives, soon put him in possession of an apiary of 100 swarms. These were increased to 200, and sold for $1000. Here was a case of *almost* something from nothing, and such cases can be multiplied all over Southern California.

Every year hundreds of nondescript boxes of various sizes are put among the rocks in the foot-hills and among the willows, with good results.

If the city is noted for its motley population, the country is fully as interesting from the queer characters we meet. About every other rude cabin we encounter has a lone occupant. Such a person is a "bach," and his method of living is called "baching it." To show what proportion of bee-keepers live in this way, I would say that, during the convention in Los Angeles, seven were grouped around the Rambler in the St. Elmo hotel, and one remarked that he was baching it. I passed the remark around, and they all contributed the fact that they were in the same condition. There are a few benedicts, however, as you have before learned.

RAMBLER'S DOG-STORY, AND THE MORAL.

While perambulating across the mesa, about four miles from Riverside, I was passing one of these rude cabins, when a man made his appearance at the door. He seemed anxious to speak, but was evidently debating as to whether I was a tramp or a book agent. I startled him by shouting, "The top of the morning to yez!" He answered, "Good mornin'," and at the same time cast his eyes eastward over his cabin, evidently expecting to see the top I mentioned. Says he, "It's cold this mornin'." Says I, "It's hot this morning;" and with my right forefinger I squeezed the sweat from my brow. We had a little further conversation in relation to the varying conditions of the body when in action or when passive. Coming to an agreement we entered the cabin. My nose arrived first, as it usually does, and it sent back this brief but significant dispatch: "There's something rotten in Denmark." To my eyes there was revealed a very disorderly room. A broom was never wielded by the occupant, and the only bare spot was under the treadle of a sort of drilling-machine. This man was a jeweler, and he made scarf-pins in various styles, from the shells of the Pacific. I accepted the proffered chair and a proffered orange. The latter was in a clean paper bag; but that smell haunted me, and the first morsel of orange I swallowed wanted to come back; but I swished down another piece, and after that I bid defiance to smells. I was on the last quarter of the orange when there was a movement in a mysterious-looking box about 18 inches square, and out came one of those hairless Mexican dogs. My nose and I agreed right off that we'd found the source of the smell. The smell grew louder. Then another hairless varmint came out; then another; and just as I had concluded that I had found Pandora's box of evils, the fifth and last attenuated specimen of a quadruped came out. At this time the smell was very loud, and I had finished eating oranges. The proprietor said that rearing Mexican dogs worked in well with his shell jewelry. Many ladies purchased them for pets, and he readily realized $10 each for them. The poor things were shivering, even on that mild morning, and he proceeded to blanket his pets.



A FAMILY OF MEXICAN DOGS.

A hairless Mexican dog, when his fancy blanket is off, is the color of an angleworm. They are narrow-chested and consumptive looking. They are very transparent. You can see through them, except in the region of the stomach. They never bark unless the temperature is above 100,° and just one bark exhausts them for a whole day. Like true Mexicans, they are born tired, and are useful only for ladies with perverted tastes. They always smell bad, and fleas will have nothing to do with them. Fleas love decent dogs. Ladies use highly scented mixtures to keep down the smell, and spend much time in dressing their pets in fancy blankets, and also make little four-legged trousers for them, and a striped socket, tipped with a tassel, for its dear little tail. The moral I draw from the above information is, that that Mexican-dog worship is a most heinous sin; and any one owning such a dog should be labored with in season and out of season, as St. Paul says. The best labor, however, would be to destroy the idol by killing it. I admonished the man on the error of his ways, and went my way, wondering what sort of character would next meet the RAMBLER.

[After our artist had read Rambler's dog-story with a moral to it he was moved with compassion, and this is what we find penciled at the bottom of the last page of Rambler's manuscript:]

Don't kill the hairless dog; only cut his fancy tail off close behind his ears, or get some patent hair-grower, and turn him to use by making a mat of him. Cork the smell up and sell it for Lubin's Extract. I suppose if these lazy Mexicans should by any accident do two days' loafing in one it would be fatal. *Moral.*—Encourage the accident. M.

CANADA.

CLOVER A FAILURE; PROSPECTS FROM BASSWOOD GOOD.

Rain, rain, rain, is still the order of the day. These two days it has either poured or come in moderate showers a great part of the time; and for some while back, rarely have 24 hours passed without more or less of the watery element descending upon the devoted earth. Hay and straw are consequently in luxurious growth, and field crops generally are in excellent condition, save that the straw is so heavy somewhere that the wheat is beginning to lodge As for our own particular industry, there seems little that is roseate in the horizon, save that the basswood is literally filled with blossom, and promises well for its own season; but as far as present acquisition is concerned, the clover, though healthy and thrifty to appearance, has yielded nothing here so far.

A week ago I commenced to clean out the spring-gathered mixture from the hives, in the hope that, as clover pollen was coming in, the bees would fill up with clover honey; but I was disappointed in finding them continue to store in, as before, a mixture of dark honey and darker honey dew; so. as the quantity coming in was only about sufficient to keep the bees ahead of immediate wants, I had to let up on the extractor, and I see no prospect at present of being called to resume.

This condition of things in what should be the best part of the honey season is not very encouraging; but I am exceedingly thankful, however, that the result of just such disappointments and repeated disappointments may be patience, experience, hope; hope centered in the never-failing goodness of Him who never gives a stone for bread, though he does not always bring us prosperity in the line along which we are seeking it.

THE DIFFERENCE BETWEEN BLOWING AND BREATHING ON THE BEES.

I don't know whether any of the bee-keeping friends have discovered the difference between breathing and blowing on bees. To breathe on them in the way you would on a light of glass you were polishing would instantly result in your getting one of the most sudden and smarting lessons you could think of; but if you form your lips as though you wanted to concentrate your breath on the smallest possible point, and blow with vigor, as though you were trying to cool a cup of tea or coffee, you will find it to have quite a different effect, and to exert a subduing influence over the few bees you direct the stream of air against. In examining combs of brood with my two hands occupied, this is often very useful to me in getting the bees to move off particular cells that I may want to have a look at. The air directed upon them causes them to wince and withdraw to one side.

R. W. McDONNELL.

Galt, Ont., Can., June 28.

[Yes, breathing upon the bees is like a red rag to a bull; but blowing smartly does not seem to anger them.]

QUEEN-BEES TO AUSTRALIA.

SOME UNJUST RULINGS BY THE POSTAL AUTHORITIES OF NEW SOUTH WALES, BY WHICH QUEENS ARE EXCLUDED FROM THE MAILS.

Friend Root: — I was much disappointed when my No. 5 GLEANINGS did not come to hand. Kindly send me one by next mail. If I had received it I might have been able to report success in having the postoffice of N. S. W. pass queens through the mails. I borrowed a copy from friend Scobie about 14 days ago, and, after reading Doolittle's article, I wrote immediately to the Director of Agriculture, asking him to let me know the law in reference thereto. I inclose a copy of his reply, which will explain itself:

DEPARTMENT OF AGRICULTURE,
Sydney, June 1, 1892.

Sir: In answer to your inquiries regarding the carrying of queen-bees from America as mail matter, I have the honor to inform you that some of the colonies agreed to pass such packages; but N. S. W., at the postal conference held recently, objected to doing so. At the present time such packages are being passed; but so far as America is concerned, instructions are going forward by the next American mail, asking the postal authorities to inform all their officers of the decision of our own postal department. Probably some few weeks will elapse after the arrival of the official letter before the American postoffices are advised; but you can see there is a risk of your queens being stopped, unless forwarded by the next outcoming mail from 'Frisco. Any representations that individuals or the bee-keepers' association may desire to make on the subject should be made direct to the Postmaster-General.

I have the honor to be your obedient servant,

HENRY C. L. ANDERSON,
Director of Agriculture.

[The next is the letter from the secretary of the Hunter River Bee-keepers' Association:]

West Maitland, June 4, 1892.

TO THE POSTMASTER-GENERAL, SYDNEY:

Sir:—At a meeting of the committee of the Hunter River Bee-keepers' Association held this evening the following resolution to which I would respectfully draw your attention, was carried on the motion of Mr. Munday, seconded by Mr. Pullen, "That the attention of the Postmaster-General be drawn to the fact that in a recent number of GLEANINGS IN BEE CULTURE, published in America, it is stated that queen-bees are not legal mail matter in Australia, and to request him, if it is true that they can not legally be sent by post, to make them legal mail matter, as, to improve our strain of bees, we need frequent importations of new blood."

In the event of queen-bees being prohibited in our local mails a great blow will be struck at the rapidly growing bee-keeping industry, as so many are purchasing queen-bees from distant bee-keepers with the object of improving the strain of bees in their apiaries. As a number of bee-keepers are importing bees (queens and attendants) from America, we would request that a speedy reply be sent to this communication, so that these gentlemen may write to America by the outgoing mail as to the decision of your department in the matter.

I have the honor to be, sir, your obedient servant,

MICH. SCOBIE,
Hon. Sec. H. R. Bee-keepers' Association.

If I could have written before, the N. S. W. representative at the conference might have been posted up and taken a different stand. On receipt of the letter from the Director of Agriculture I communicated with Mr. Scobie, Hon. Sec. Hunter River Bee-keepers' Association, and a committee meeting was called on short notice. This meeting passed a resolution, and wrote to the Postmaster-General, as per inclosed. We await his decision; and if not favorable we will adopt further means to gain our end. Perhaps you might see fit to do something on your side of the globe to help in this matter.

W. S. PENDER.

West Maitland, N. S. W., Australia, June 10.

[By what reason or logic the postal authorities of New South Wales could consider queen-bees not legitimate mail matter, we can not understand. It is the same old story over again—cutting off their own noses to spite their own faces. It is a direct blow at bee-keeping in the most important province of Australia, and we certainly hope that the letter from the secretary of the Hunter River Bee-keepers' Association will cause the department to reverse its decision. Such prompt action is commendable, and should be imitated in Jamaica, W. I., where official officiousness has also interfered. We are glad to notice that the postal magnates of the other provinces of Australia have taken no action against the mailing of queens to their ports, and we therefore accept this as a permission.

There are several prominent queen-breeders in the United States who are both competent and willing to send queens to foreign countries; and it therefore devolves upon the bee-keepers of those countries to see there is no legislation enacted prohibiting the mailing of queens; and if such action has been taken, to have it reversed. There is no reason in the world why new blood should not thus be introduced, and there is every reason in its favor: and we have no doubt that, when the proper representations are made by the proper persons, the officials of the postal departments of the various governments will be very glad to make such regulations as will admit of mailing queen-bees.

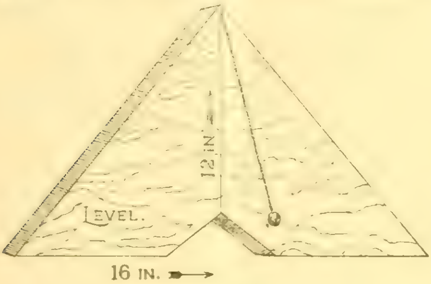
We presume the reason why GLEANINGS No. 5 failed to reach our correspondent was on account of the fact that copies of our journal are occasionally lost in the mails in going so great a distance. We have mailed another copy, and trust there will be no more missing links in the chain.

OLD THINGS FOR NEW USES.

C. A. HATCH DESCRIBES SOME USEFUL HOME-MADE TOOLS FOR USE IN THE APIARY.

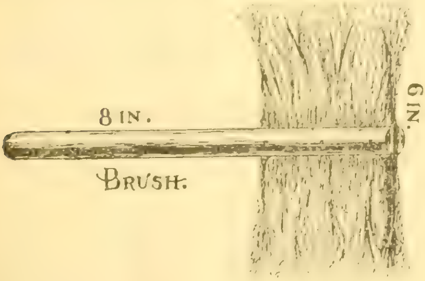
We are all more or less inclined to try new things that look plausible; but how many times do we want to try things that are old, for the same reason? Our predecessors may not have been quite up to us in point of smartness; but somehow as I get older I am inclined to have more respect for them and their ways.

One of the old things that has proved useful to me is the old-style level. It has the merit of being cheap; and any one reasonably handy with saw and square can make it, and it does its work well. Mine is made of a piece of 2x12 plank; 16 in. is about the proper length. To level up hive-stands, set it on a bottom-board on the stand, and block up under until the line falls naturally parallel with the mark on the plank. Any bit of lead, or even an old burr, will do for the plumb-bob. Bore a hole in one corner to hang it up by when not in use.



LANGSTROTH BRUSH.

I have tried all styles of brushes known to the fraternity, from a turkey feather to a bunch of asparagus tops, and, all things considered, I like the one father Langstroth described in his book years ago best of all. Two pieces of half-inch rope, 6 in. long, and a piece of broom-handle 8 in. long, is all that is needed. Make two saw-kerfs, as close together as you can conveniently, 3 in. deep from one end, and, after separating the rope into strands, force them down into the opening left by the two saw-kerfs; drive three or four wire nails through and clinch tight, and it is done, except that the rope will need to be wet and straightened. I have two or three, so when one is daubed another is ready. To clean, put it in warm water, and whirl as if it were a top you were going to spin. The same motion when out of the water will throw the brush all out straight, and get rid of surplus moisture, only it is apt to fly into your face or on your clothes; but if it is not dirty water this will do no harm. Lay them down to dry. It works best while yet damp.

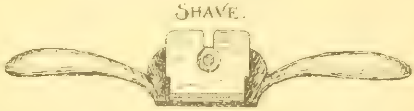

8 IN.
6 IN.
BRUSH.

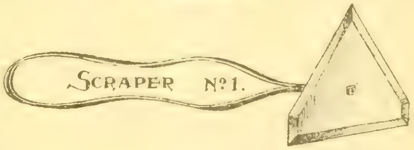
SPOKE-SHAVE.

I have found that your straight iron spoke-shave beats any thing yet tried for putting dipping-boards in shape after the ends, sides, and corners get rough by use. It will "bite" on a board that is so wet that a common plane will not touch; and where it is too cross-grained to work well with any other tool, by holding it so as to run cornerwise you can do a good job with the spoke-shave. Of course, it must be kept quite sharp to do this. I would not be without one, for this use only, for twice your price.

SCRAPER.

This is an old tool with some new features. I got mine from Harry Lathrop, our State secretary; and for cleaning up hives, crates, frames, or for cleaning off the dirt from the bottom of cakes of wax, it beats all. I think if Dr. M. would try one he would go and bury that clumsy hatchet of his for ever; but I presume he is wedded to his idols, so don't tell this to him, but consider it strictly confidential.




SCRAPER No. 1.

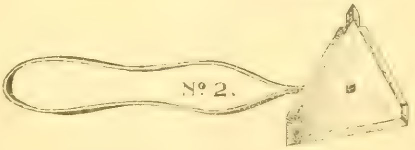


Fig. 1 differs from the scraper you sell, in having two right-angled corners, which are quite important in getting into the corners of a hive and cleaning out the rabbet where wooden rabbets are used. A common mowing-machine "section" just fills the bill for one, and any blacksmith can do the rest. The shape of the handle is also important; ⅜-inch oval iron is best to make it of. If there are many wood-zinc honey-boards to clean, it will pay to file one of the square corners so as to just fit between the wooden strips—see Fig. 2.

CLEANING OFF WAX AND PROPOLIS FROM TIN.

Has any one tried boiling water and one of your cheap scrubbing-brushes, with plenty of soft soap, to take off wax and propolis from tin? If not, let him try and see how it will melt and disappear as if by magic. I have no doubt the lye recommended by Miss Wilson would do as well as the soap and boiling water. It would do better for small things like separators; but large things, like wax-boilers and pails to cool wax in, must be scrubbed. I have found that the large pails I use to cool wax in when purifying get so coated that the cakes refuse to come out, even though there is quite a difference in the size of the top and bottom. But after giving them a good scrubbing with the brush, as above, there is no more trouble for some time. Any one who has fussed fifteen or twenty minutes with a cake of wax that *will not* come out, can appreciate this. It is the little annoyances that waste our time and spoil our temper.

The outlook in Wisconsin is very gloomy indeed. I estimate the loss on wintering and springing at 40 per cent, and loss on the remaining 60 per cent, by bad condition, 30 per cent more, leaving less than half the bee force of last fall. The season is at least four weeks late, and still the rains continue. Clover is largely killed by last year's drouth and winter exposure, so all we have to look forward to is the basswood, which we are hoping to get all right. C. A. Hatch.

Ithaca, Wis., June 7.

THE WEST QUEEN-CELL PROTECTOR.

HOW THEY MAY BE USED FOR REARING QUEENS.

I am running six apiaries this summer, and get just about swarms enough to furnish me with what increase and choice queen-cells I want. These I carefully cut out and place in the cell-protectors and cages attached; and when I arrive at any out-yard I always have on hand a fine lot of young virgin queens all hatched, and in cages—sometimes 15 on one comb. I use the best of these where I want them; and if they are very choice, and I want to save more of them, I just break up the hive that has done the hatching, placing only one comb of bees and one of the queens let loose upon the comb, in an empty hive. I shut the hive up, and carry it where I want it to stand. I then open the entrance ½ inch wide. So I keep on until the combs are used up, leaving one on the stand where the queens were hatched.

Now, Mr. Root, you will see that this hatching all of these queens was done by the parent hive that had cast a swarm five or six days before the cells were caged; and by the time the young queens are hatched there are a great many young bees hatched too. We thus have a hive full of young bees that have never been outside of the hive to mark the location of their home, and they are just the ones to make the nuclei of, as they will stay where they are put and needed. These nuclei must have some honey and brood, so that the bees will neither starve nor swarm out when the young queens leave their hives to mate with the drones. Other hives that have cast swarms, and whose cells are not desirable to save, make good nuclei after their cells have been destroyed, and treated the same as the ones just described, with the exception that each nucleus is given a choice virgin queen hatched elsewhere. I leave the queen in the cage, and pack one end of the cage full of hard queen candy. These young bees will receive the queens. Now, at the time the nuclei are made, or at any time after the work is done, if they have only one frame of bees (two would be a little better, especially if the weather is cool), a division-board should be placed at the side of the frame of bees, or another comb and a frame of brood from other hives. If increase is desired, keep adding brood taken from other hives as fast as there are bees enough to care for it, and these nuclei will soon be strong colonies. When preferred, the queens may be used elsewhere as soon as they are laying without adding to the strength of the nuclei, and more queens can then be mated in these same nuclei. After the queens have been taken from the nuclei, a queen-cell can be given to each one at any time with perfect safety by placing the cell in the spiral wire cell-protector, and placing one in each nucleus, on the side of the comb, of course. The nuclei must not be allowed to raise a queen from their own brood; and any cells being started that would hatch before the one in the protector, should be destroyed at the time the cell is introduced.

I keep the age of every queen I own, marked on the hive; and at any time I find a queen condemned on account of age or any other cause I mark it down on the hive and on my book: and when I have some of these choice queen-cells on hand at the right age, I cut them out and place them in the cell-protectors. I then open the hives that have the condemned queens, find and kill them, and introduce the cells before the hives are closed. The cells are perfectly safe. I look again after it is time for the queens to be laying without doubt; and if any queen should happen to be lost in mating, etc., I then go to a nucleus and get a *laying* queen and introduce her.

All who practice taking away the queens for a short time during the swarming season, and then running in a virgin queen later, will find that they can very easily get all of the queens very cheaply by the use of the spiral wire queen-cell protectors and cages; and from one to twenty virgin queens can be hatched in each hive that is being run for box or extracted honey without a queen being loose in the hive. It is not necessary that there be food in the bottom of the cages in hatching queens, as there should be no loose queen in a hive that is hatching young queens, and then the bees will feed and provide for all of the young queens in the cages better than we can. If, however, there is one queen loose in the hive, the bees will not care for the young queens, but will kill them if they could; and if they can get a hold of a wing or a leg of these caged queens they will pull it off.

But, to return. Suppose you have one or twenty queens hatched in a queenless hive. Let one queen out, and she is safely introduced every time. Do what you please with the rest. It is better to have ninety queens to spare, and use the best and kill the rest, than to lack ten queens and have to use some you had rather not, because you have to use all you have on hand and then lack ten. N. D. West.

Middleburg, N. Y., July 15.

[We have been using the West queen-cell protectors with much satisfaction for two seasons in queen-rearing.]

OLMSTEAD'S STRAY STRAWS.

THE WEATHER; HONEY-JUMBLES, ETC.

It's rained, it's stormed: small lakes it's formed;
  It's hailed, then rained some more;
While men with blues and low-cut shoes
  Have ripped and raved and tore.

Well, this is the ever-glorious Fourth, and, to my great surprise, it is as clear as a bell, and the bees are just pouring in with honey, while for the last two hours I have been reading Gleanings. I don't think I ever more enjoyed reading. The last number I think unusually good.

It's just chuck full of good things, and I have laughed till I cried over Rambler's description of his journey up the canyon over the half-pitch road, and yet "no harm done;" and the little side picture showing the editor in hot water; the doctor's outburst, etc. I suppose the weather has something to do with it, for I feel more like laughing than I do any thing else; and the more solid matter; the biography of your artist; the present editor of the *American Bee Journal*, besides the Home talks, are exceedingly interesting to me.

HOW TO CLEAN THE BLAST-TUBE.

A few days ago I picked up the directions for using which are sent with Clark smokers; then I read in a back number of GLEANINGS how Dr. M—— uses a crooked wire with a hook on one side, to clean the blast-tube. That's all right, doctor, till you can do better. I tried the bent wire; but after hooking a while I found the scraping, like the handle of a jug, to be all on one side; and with Mr. Root's green stick I rammed more in than I pulled out. When you have come to this conclusion, go to your shop, and, with a ⅜-inch bit (I mean a bit, and one that will cut, too — not a *thing* that will turn in like a screw); bore a hole in the under side of your bellows, in line with the blast-tube (when the bellows is closed). Now pass a stick, small end first, through from the under side, and pull it out at the nozzle, bringing the obstruction out instead of pushing it down in. Cork the hole, and try a smoke; and if you don't like this plan, keep on with the wire, or ramming it in with a stick. You will get your bell(y)ows full of it after a while.

FUEL FOR SMOKERS.

Take dry cobs and pound them up the size of hickorynuts or walnuts, and start the first time with a few coals from the stove. When refilling, save a few of the coals to start the fresh cobs; and if they have gone out you can start or light them with a match, or use a little rotten wood to start them, as you can not easily light the fresh cobs with a match. I prefer cobs, as the smoke is more agreeable to me and to the bees, and it takes less to quiet them; no sparks to burn me and my clothes, nor ashes to blow into our honey while smoking the bees out of the crates. I can load a Clark smoker with cobs so it will last three or four hours.

BEE-ESCAPES NOT WANTED.

We have no use for bee-escapes. I believe I can take off a thousand pounds quicker, and with less trouble, without them than with.

TO START BEES IN SECTIONS.

Sometimes, when bees will not go into sections they can be started by lifting the crate or super, and scattering some small pieces of paper between the frame and crate (don't be afraid to put on enough), and then sprinkle sawdust in the boxes from the top; and if some is left on top of them, if there is a bee-space above it is all right. The bees begin by gnawing and carrying out the paper, and get interested in the boxes while clearing them from sawdust. Try it. It doesn't always work, but generally does if there is plenty of honey.

HONEY-JUMBLES.

If there is any such thing as a recipe for making honey-jumbles or honey-jumboes, or any thing else in the line of honey, fit to eat, I wish you would publish it in GLEANINGS, unless you think I would be the only one who would care for them.

BEE-KEEPERS' SONGS WANTED.

There is another thing I should like to know, and that is, where to send and get all the bee-keepers' songs with music. I think the officers in every bee-keepers' convention ought to have two or them included in their program, and have them sung by some good singers.

MAKING FOUNDATION IN LONG STRIPS.

We make our foundation in strips up to 20 or 30 feet long, and cut up for use. We intend to make a piece 75 or 100 feet long to drape our exhibit at the county fair.

A GREEN-EYED MONSTER AHEAD.

Do you know that there is a great green-eyed yellow-backed monster nibbling at the bee-men of this land, and that by and by he will get through the skin (so it hurts), and then they will begin to realize the cause of their trouble? Oh what a squirming there will be!

CHESTER OLMSTEAD.

East Bloomfield, N. Y., July, 1892.

TWINS.

HOPE, THE BEE-KEEPER'S BANK ACCOUNT.

Misfortunes seldom come singly, so 'tis said. But they don't always come in pairs—sometimes in swarms. But we are not complaining of swarms this year, in this corner of the universe—only twins—not twin babies, for *they* are never an affliction—never a misfortune—unless two mouths have to be satisfied with one ration or less. Twins, nevertheless—two of a kind.

Last season was one of the worst ever known here, for bee-keepers. There wasn't honey enough to sweeten one's temper, to say nothing of the rest of the family. The profits of the business were obtained chiefly by banking on hope—that 1892 would be better—*must* be better, because the probabilities were that we'd not have two poor years in succession. So the compensations that were to be in 1892 were set over against the losses in 1891, and the average looked quite respectable. Whereas we got zero in 1891, we expected the biggest kind of a crop in 1892—on the theory that our compensations and our disappointments will somehow average in the long run.

You have heard of Hosmer? Let's see; was it a thousand pounds per colony he wagered to produce, and no takers? Some of us had read that charming fiction. So you see how profitable the season was to be. We laid in sections by the carload (or less), and foundation at wholesale rates. Hope was our bank account. We were drawing against it. What a miserable old world this would be were it not for hope! Paul said hope was like an anchor to the soul. Yes; and, as paradoxical as it sounds, hope is *wings* to the soul. By it we soar beyond the clouds. By hope we overcome discouragements and drown despondency. Hope nerves the arm and cheers the heart. By hope we dwell in kings' palaces. So while our bees slept we figured future profits. Thank God for hope!

But spring came—not early, but it came. We are pretty sure to have warm weather in this country by the first of July. We did this year. The bees were out earlier than that, through force of habit, but they didn't bother the neighbors' watering-troughs. Those able to leave the hives could get a good supply without going far. Water wasn't a scarce article. I heard no one inquiring for it—no schemes for making rain artificially. If what fell had been nectar, we could have gotten our pitchers full without any bees. The sun did shine occasionally, but the bees did not report for duty with the vigor and alacrity we had counted on. In our eagerness to record results we had neglected to invoice our "stocks." When the roll was finally taken, June 1st, about 40 answered at this ranch; but some of them were fit subjects for the hospital, and I find I have the liveliest and best outfit in the neighborhood. Some have held memorial services over their dead hopes—all gone. It's the grip, I suspect. One man who had about fifty colonies last year, and who lost all but one, said he wouldn't have cared a fig if Secor had lost all his too. There's sympathy for you.

Swarming at a lively rate now, and storing honey from clover. "It is good that a man should both hope and quietly wait"—especially hope. EUGENE SECOR.

Forest City, Ia., July 9.

PUNIC BEES—THEIR HISTORY AND ORIGIN.

NOT A NEW RACE, BUT THE OLD TUNISIAN BEES THAT HAVE BEEN TESTED AND DISCARDED.

By Ernest R. Root.

Those of our readers who take the *British Bee Journal* know something of the controversy that has taken place in the columns of that periodical in regard to Punic bees. Hallamshire Bee-keeper, or John Hewitt, of Sheffield, England, the importer of Punics, and the editors of the *British Bee Journal* have been the parties in the controversy. Finally the former threatened to enter proceedings for libel against the latter; but, so far as we can ascertain, no such action has as yet been formally taken, nor is there any likelihood that there will be.

Editor Cowan insisted that there were, strictly speaking, no such bees as Punics—that they were only Tunisian bees—a race that was long ago tried and discarded by competent European apiarists. To remove some uncertainties in regard to the bees of North Africa, Mr. Cowan, at his own private expense, made a journey into Tunis and Algeria, Africa, visiting on his way some 32 apiaries, to determine, beyond a question or doubt, whether the Tunisians were the same as the Punics, or whether the Punics were a distinct race. He found no bees whatever "bordering on the Great Sahara," but he did find plenty of Tunisian bees, in their own native country, and the very man himself who exported the so-called Punics to Hallamshire Bee-keeper in England. The exporter was greatly astonished that Hewitt, the importer, should claim that they were a new race of bees; that he (Hewitt) had claimed that they were carried from the borders of the Sahara on the backs of donkeys and on the heads of negroes to habitable regions, and thence forwarded on to England at an enormous expense; or, in the words of Hewitt, at a cost that he "dare not mention for fear of being regarded as a crank or lunatic." The facts are, the exporter, a resident of Tunis, lives only ten miles from the railway station. He bought up the queens from the Arabs in his vicinity, as all kept a few hives. The queens were then put into cages and sent by mail postpaid to Hallamshire Bee-keeper, or John Hewitt, for about $1.00 each. Making due allowance for the fact that some of the queens died on or before arrival, the actual cost of the live queens could not have much exceeded $2.00. As Mr. Cowan sarcastically remarks, "It is no wonder that he did not dare to mention the cost for fear of being thought a crank or a lunatic." In the *Canadian Bee Journal* for 1891, page 458, Mr. Hewitt, after telling the donkey story and the enormous cost of the bees, etc., actually consents to sell a *few* at the nominal price of *forty dollars* to help defray the expense of importing them from Africa! It appears from this that Mr. Hewitt intended to make only 2000 per cent on his investment.

We regret very much to come out with these facts; but it seems to us to be only justice and right that we should do so since we inserted Hewitt's advertisement* to prevent unsuspecting bee-keepers of this country from sending to England and paying these enormous prices, when the facts are, these queens can probably be purchased direct from Tunis for an insignificant sum.

We will conclude this with a statement from the editor, Mr. Cowan, which details carefully the characteristics of the bees as observed and found in their native home. It is only necessary for us to state, that many of these characteristics tally very closely with our own Punic bees. We should probably find that they would all tally exactly were it not for the fact that we have had them for only a limited time. The following extract is taken from the *British Bee Journal* for July 7, page 254, and it will be read with interest:

> We have now been able to satisfy ourselves that there is only one race of honey-bees in Tunis and Algeria, and that this race is *Apis mellifica* and not *Apis niger*. We have brought specimens from different parts, and in due time we shall exhibit them in the proper quarters. These North African bees, as a climatic variety, are black, and as small as the small black bees found in this country, as well as in other parts of Europe. The queens are prolific, and the workers industrious; but this is the most that can be said in their favor. They are certainly the most vindictive bees we have come across, more so even than Cyprians or Syrians. They will sting without the slightest provocation, even when one is not near the hives. We found strong colonies always inclined to sting, and only weak colonies and those having young bees less inclined to do so, although we were told that sometimes they were quieter. They were said to be "the tamest bees known." "The honey-producer being the party to appreciate the bee that does not sting" (*C. B. J.*, p. 457, 1891), but this is not borne out by our own experience, or the unanimous verdict of those cultivating these bees. On one occasion, before we got near the apiary we were attacked and were pursued for a considerable distance by enraged bees, and this was not during their swarming time. It was useless to attempt any inspection of the bees without veils and a profusion of smoke. So well is this character of the bees known that the bee-keepers take great care to place their apiaries as far away from houses as possible. Not satisfied with stinging, they even bite. The queens resemble the eastern races, in that they are extremely prolific, but are very short-lived, and a colony frequently renews its queen several times during the year. On the loss of a queen a large number of fertile workers commence laying.
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> This race of bees swarms frequently, and it is not unusual to have from five to eight small swarms. A large number of queen-cells are raised, and we have ourselves counted as many as sixty on one comb. The swarms are small, and the after-swarms frequently consist of almost as many queens as worker-bees. The workers spread over the hive, and do not protect their brood so well as other races. They are the most persistent robbers, although it has been stated that they are "non-robbing." Our correspondent, Mr. Ph. J. Baldensperger, on p. 227 of the *B. B. J.*, gives a case of robbing and we ourselves had an opportunity of witnessing a hive being robbed. A bee-keeper in Tunis, having 120 hives, is so annoyed at being so persistently stung by his bees that he talks of giving them up, and we met several who were going to import Carniolan queens to improve the race or to supersede the natives.
>
> We shall have a good deal more to say about these bees and the pleasant times we spent with the bee-keepers in Africa, in due time. These bees, as

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*Hewitt, true to all reports in England, from parties outside of the controversy, refuses to reply to our statements. We question, from some unpublished evidence, if he ever intended to pay for the advertising.

we stated in *B. B. J.* for 1891, p. 381, have been tried in Europe since 1874, and have been abandoned, and it is fortunate that not many have been introduced into this country, so not much harm has been done. It is to the credit of our dealers that they have had nothing to do with them. No doubt a race that will rear hundreds of queen-cells is a valuable one for the virgin-queen dealer, but such a race is not one for the bee-keeper whose object is honey.

These bees are cultivated in a very simple fashion by the natives. The nomad Arabs that live in tents have a few hives—sometimes five or six—which they place at a distance from their tents. These hives are cylinders of cork or basket-work, or even in some places they are made of the flower-stems of the giant fennel. The hives are about three feet long and eight inches in diameter, and are covered with cow-dung. They are placed horizontally, and have a piece of cork bark or wood at each end, with a hole for an entrance cut in them. When the Arab wishes to take the honey, he removes the board at one end, and thoroughly smokes the bees. For this purpose dry cow-dung, reduced to a powder, is set on fire in a pan, and the dense smoke is blown into the end of the hive. This drives the bees forward, and nearly stupefies them. The Arab then cuts out about a third of the combs, replaces the board, opens the hole, and turns the hive round. In this way the combs are constantly renewed. The combs are then mashed up together with brood and pollen. This mess is used as honey, and the wax melted and sold.

The Kabyles, who live in villages, cultivate bees more extensively, and sometimes have as many as from 200 to 700 of such hives, generally of cork. We have brought home some Arab hives, and hope to show them to our friends. We were offered queens by many of the bee-keepers, but preferred to bring them pinned out in our insect-case to taking them alive, so convinced were we from what we saw that they would not be an acquisition, and would only damage our more quiet races. What we want besides industry is good temper; and in this respect there are no bees superior to Carniolans.

Every bee is suited to its own country; and our advice to our African friends was, to make the best of their bees by selecting the quietest for breeding, and eliminating the bad-tempered ones, and thus improve their own breed. The entire behavior of these bees showed that they were suited only to a warm climate. They are enormous propolizers, and rear a large quantity of drone brood. In fact, one bee-keeper showed us frames that had been fitted with worker combs where the bees had cut down the combs and constructed drone comb, so intent were they on having a large number of drones. This certainly is consistent with their habit of rearing a large number of queens.

We will just conclude by observing that the place from whence these bees were sent to England is 200 miles from the desert. Moreover, there are no bees at all in the desert, nor for some distance before one gets there, the upper plateaus being arid and barren. We traveled as far into the Desert of Sahara as the third oasis, Sidi-Okba, but did not see a single bee, either wild or domesticated. In fact, there are no flowers for them to gather from, and little else besides date-palms are cultivated in the oases.

[GLEANINGS desires to be fair in all things, and to give all the facts, pro and con. Since our adverse statement in regard to the Punic bees in our last issue, we have received from Mr. Alley a letter which he received from one of his customers that speaks very highly of the queen he received, and we give place to it here:]

Editor Am. Apiculturist: There has been so much said concerning the Punic bees, and the many good qualities claimed for them, I will give you my experience from last October up to date. I procured a Punic queen from Henry Alley about the first of October, and introduced her to a small colony—not over one quart of bees—and no honey. I fed them, and the queen began laying the third day after she was introduced. By the first day of December they were more than double in numbers, and had plenty of honey for the winter. By May 15th they were the strongest colony I had. I have taken from them 14 frames of honey and brood for other hives, and divided them once, and now the old hive contains 15 frames of brood and honey, 12x12, and the new colony is full of honey and brood, and in fine condition. My new colony of Punics have gathered as much honey as any of the old colonies of the native bees; and the old colony of Punics have gathered nearly twice the amount of honey of any of the other colonies. So far they have come up to all the good qualities claimed for them. They are quick and active, work early and late; they are working before the others are out, and after all others have quit. I am satisfied they are the coming bee; and if they are given a fair trial I think they will give perfect satisfaction. I am well pleased with mine, and hope other bee-keepers will give them a trial. I. N. MOORE.

Los Angeles, Cal., July 12

[There is nothing in the above that directly contradicts Mr. Cowan's statement. Punics may be good workers and prolific, and yet have *other* characteristics that would make them very undesirable. Cyprians were both prolific and good workers, but, oh my! nobody wants them now. They can't even be bought in this country.]

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

A DISCOURAGING REPORT FROM A. E. MANUM.

I am sorry to say that honey is almost a failure with me. Nothing has secreted any honey of any account this year except clover, white and alsike. But when these were at their best we were favored with rain, rain, rain, wind and wind, with plenty of cold days thrown in. The 14th and 15th, basswood commenced to open; and when I saw that the blossoms were fresh and plump, I thought sure we should get a good flow from that source; and fearing I might get short of foundation, and have no time to make it, I wired you to send me 30 lbs; but before it arrived I decided I did not need it, as there was no honey in the basswood-blossoms. It is not in full bloom; but the bees take no notice of it. They are barely picking a living—the strongest colonies—while I am obliged to feed my nuclei. I shall have only about one-fourth as much honey as I had last year, or about one-eighth of a crop. I never was so surprised and completely done up as I am this year over the failure of the basswood. But, what can't be cured must be endured. I hope bee-keepers in other localities have met with better success. I never had my bees in better condition than now. They were ready, and are now waiting for fall harvest, which, I hope, may help us out. The prospect surely looks fair from that source.

Bristol, Vt., July 22. A. E. MANUM.

MIGRATORY BEE-KEEPING IN FLORIDA.

I shall go south down the river 125 miles with my bees about the 20th of August, for a full crop. This migratory bee-keeping is a great thing. I have already taken two good crops of honey, and am now preparing for a third one; and this is the most certain one of all—the pennyroyal—as it yields honey for three months; and it makes no difference whether it is wet or dry, warm or cold; the honey is there; all you want is to go where the bloom is, and have plenty of surplus combs, with hives full of bees. These are the winning cards.

New Smyrna, Fla., July 14. A. F. BROWN.

IN-BREEDING, AND ITS EFFECTS.

Please inform me whether bees will deteriorate, run out, degenerate, or become in-bred, by starting with one swarm where there are no other bees, and keeping them for six years.

Hackberry, Ariz. MRS. THOS. B. SHIPP.

[We think so to a certain extent. The bees of Mr. Murdock may be an exception. See p. 556.]

NOTES OF TRAVEL

FROM A. I. ROOT.

IN THE SAN JACINTO VALLEY.

The day before leaving, our good friend Morse hitched up and took Mrs. Root and myself, together with his good wife, and we went off to a wild mountain spot. where his apiary is located. Through this valley there are occasional isolated mountains that rise from 100 to 1000 feet or more in height. and a great many times it is a level plain all around them. Sometimes one of these mountains rises up in the middle of a farm. The rainy season had commenced, and we saw the rain falling on the different mountain-peaks all around us; but down in the valley we had sunshine most of the time. There are some strange things about these little mountains. Not very long ago, a cloudburst occurred near friend Morse's apiary. It poured down a hollow on one side of the mountain, like a deluge indeed. Every thing in the way of improvements was swept away; and when the water reached the valley below, it came over the plain in the shape of a huge wave two or three high, taking fences and all before it until it had spread out so as to do but little harm. Well, up in this notch of the mountains some would-be explorer—a man of considerable means—had tunneled into the side of the mountain, at an expense of several thousand dollars, in the vain hope of finding water, so as to make this notch that contained two or three hundred acres a spot of value. After he had given it all up, there came this cloudburst. Well, what do you suppose this cloudburst revealed? Why, within less than half a mile from where he wasted his money, a torrent of water, in washing away a bank of earth, disclosed a spring; and as we came near the spot my ears were greeted with the sound of a waterfall. I left the rest, and ran down behind some bushes, and there indeed was quite a little volume of water pouring over a rocky ledge two or three feet high. This spring runs winter and summer, I was told; but the strange part of it is, that, a few rods below the waterfall, the stream gradually disappears in the porous gravel formed of powdered granite. Now, this lets us into a secret. There are springs of much volume round about the bases of many of these mountains; but nobody suspects it, for the water sinks down into the porous soil before it ever reaches daylight.

On account of the rain we pushed on to Riverside in the hope of meeting our good friend Rambler in his present home. We found his abiding-place; but the good woman who had charge of the rooms informed us that he was out at his apiary, somewhere off in the mountains; and as he usually went away on foot, she could not tell us when he would be at home; neither could I start after him on foot very well, for there were several routes which he might have taken in going and coming. Besides, I might get lost; and, moreover, it rained —that is, it rained now and then, and then the sun shone now and then. Between the showers Mrs. Root and I managed to take in a view of the town of Riverside pretty thoroughly. On another page friend Rambler has given us a glimpse of the Riverside postoffice. I do not think he used his Kodak, however, for the building is rather more imposing than the one shown in the cut, and the buildings adjoining were also much more citified. Riverside has grown so rapidly during the past three years, that, had I been set down in the place without knowing where I was, I should not have recognized a single landmark. So much for a town that does not have any saloons or whisky-shops. Riverside and vicinity is truly, so far as I know, the garden of the world. As we came in on the train we saw oranges heaped up in the orange-orchards until it seemed as if all the world could never use so many; and when we went into towns in the adjoining suburbs, it seemed just so everywhere. At Riverside the orange-trees are not only close to the sidewalk, but there are trees outside of the sidewalk, expressly for the comfort and refreshment of the thirsty traveler; and the most beautiful oranges were right overhead and all around your head. Sometimes you had to dodge to keep your head from bumping against them.

When the rain abated a little I took Mrs. Root along to one of my repeated visits to see if Rambler had got around. You see he blames me a little because I did not hunt him up; and he says, too, I might have sent him word that I was coming. What a preposterous idea, when it rained every day, or two or three times a day, so that nobody could tell what he was going to do! Well, even if we did not find Rambler himself we found some beautiful fancy poultry; and among the collection were some wild quail. Now, you may talk all you like about fancy poultry, pigeons, guinea hens, peacocks, and every thing else in the whole line; but to my mind there is nothing in this whole wide world so pretty and graceful and so cute as the California quails. Why, I do not understand how it is that Rambler has lived there right close beside them all this time, and has not said a word about them. I did not have my Kodak along, so I can not give you a view; besides, if I did have it I am afraid the birds would not have stood still long enough for even the Kodak. At the different restaurants I had frequently dined on quail on toast; but when I came to see the dainty little birds alive and on foot, I felt—well, rather ashamed of myself.

Well, as Rambler would not come home, and we did not know how to send word to him, we resolved to see what we could do; so we took an excursion. It was on what they call the "kite track." You go off on one line of railroad and come back on another, going around a loop. We had time to take in only half of the small loop, for you see the excursion route is something in the shape of a figure 8. While we were at Riverside it was clear sky and sunshine; but away off on the San Bernardino range of mountains, especially toward the Arrowhead Springs, we could see it was raining furiously. We concluded, however, it would stop before we got there; but it didn't, and we went through the beautiful towns clear out to Mentone and Redlands, and lots of other places, through the continuous rain; and when we got back it was clear sky and sunshine again. The rain did not, however, entirely cut off the wondrous beauty of these new towns round about Redlands. We thought we had seen orange and lemon groves and orchards before; but on this little trip it was a perfect maze of fruit-farms. In fact, almost every foot of land seemed to be laid out and planted with fruit of some kind. I sincerely hope all of the fond dreams will be realized that seem to have given such a wonderful boom to Redlands and vicinity.

When we fetched around to Colton, on the Southern Pacific, we decided to leave the land of flowers and sunshine (and rain too, sometimes), and start for home. As we had a couple of hours at Colton, even though it was after dark I went on a little exploring expedition around the town. Mrs. Root thought she had explored enough for one day, especially as it began to rain. As I pushed off into one of the by-streets a little, my ear caught the notes of a familiar hymn, and pretty soon I was looking in at the open door. It was so near train time I did not dare to go in and take a seat, so I stood there listening, with a Chinaman on one side and an Indian on the other. They looked at the audience, listened to the music, then stared at me inquiringly; but either they did not understand my lingo or else they did not choose to talk, and so I did not do very much missionary work that evening—or, at least, if I did I did not know it. A bystander informed me that it was a meeting of the Salvation Army; and though I have said, during my trip, a great many times, "God bless the Salvation Army," I said it again then and there. They were right on the streets, among the people. The audience was made up of common people, not very much unlike the Chinaman and Indian. They all looked friendly, and they acted friendly; and I am sure that Christ Jesus was in their midst, for he went about among the very same sort of people, and, in many respects, in much the same way that they did.

I could not help feeling a little bit sad when I thought of leaving California, even though it was the first step toward *going home*. Before we quite take leave of California, however, I want to give you some beautiful pictures of the vineyards and orange-groves of that land. But Ernest tells me, however, that there are so many nice pictures laid out for this issue that I must save mine for next time.

HIGH-PRESSURE GARDENING.

BY A. I. ROOT.

THE AMERICAN PEARL ONION.

Ours were harvested July 15, and they are at present spread out on trays in the sun, right in front of our plant-garden across the street. The sight of great large white onions, fully matured and dry at this season of the year, calls attention from many passersby. We are at present retailing them at 8 cts. per lb., which is about equal to $4.00 per bushel. People do complain some of the price; but there is no opposition, and nothing like them in the market anywhere; and they are so handsome, and mild in flavor, that they sell, even though the price is high. I confess I can not understand why it is that they winter over in our locality, and fail in so many other places. Perhaps it may be owing to our very rich market ground. We use no mulch whatever, and a part of all our plot was under water perhaps half a dozen times, and sometimes for nearly 24 hours. This seems to indicate that they are very hardy. Where they had been wet so much, however, we noticed some inclination to rot. On this account they were harvested and put in the sun a little sooner than they would have been otherwise. We shall offer the sets for sale again another season; but the sale will doubtless be limited, owing to the many failures reported in wintering.

THE ONION-PLANT BUSINESS.

In our locality, all that I have heard from who purchased onion-plants of us have nothing to report but a big success. Will those who received onion-plants by *mail* or *express* please tell us whether they have succeeded likewise? We are anxious to know how onion-plants bear shipping to distant points.

THAT QUARTER-ACRE PLANT-GARDEN.

After all these preliminaries, we are now ready to consider the best manner of going to work to put up our little plant for gardening under glass. I have said before, that your ground should, if possible, slope toward the south. However, this is not imperative. You can give the same slant to glass by having the back side of the beds about so much higher than the front. If you can afford the expense I would advise you to have the whole plot of ground graded like a nice lawn. Have it highest in the center, and lowest all around except on the north side. Every path and every street should act as a surface drain; and it should be so graded that no water will stand an hour in any of the paths. If you propose to use steam under your beds I would have two lines of tile under each bed. Let these tile be about a foot below the path near it. As the soil in the beds will be something like 6 inches higher than the path, this will give 18 inches of depth below the surface of the bed. If the beds are 6 feet wide, as I have advised, the lines of tiles should be about 3 feet apart. Suppose the heat to extend 18 inches each way, this will just warm all the ground under the bed. Now, I would have these same tile laid in such a manner as to carry off the surplus water; that is, let them act as underdrains as well as for steam-pipes. Be sure you provide ample outlets at each end, or wherever the lowest spot is.

Aside from these lines of tile I think it would be well to have other lines at right angles to these, and, say, 6 inches below them. These latter would be 2 feet below the surface of the beds, and 18 inches below the paths. These latter lines may be 20 feet apart. You may think so much drainage is unnecessary; but with extremely wet seasons I am sure it will pay. Another thing, I am more and more convinced that the office of tile drains in letting *air* down into the soil is a most important matter. If the tile used be the smallest size, say 2½ inches inside, the expense of it will not be very great, neither will the expense of digging be very much for only a quarter of an acre. With all the underdraining and surface draining we have had on our plot during the past season, several times the paths have been muddy and sloppy. The steam is admitted to the tiles at one end of the bed, and at the opposite end the tiles are turned up so as to reach out of the ground, say about a foot; then when you open the valve to let in the steam, you simply introduce enough steam to let it get out of the opposite end so as to be visible. A very little steam will warm up the beds, and a very moderate pressure is all that is needed. I have not found it necessary to put any collars nor any thing of the sort over the joints of the tile. If the steam gets out around the end of the tile where it is first let in, a little packing and tamping of clay seems to answer every purpose.

MAKING THE BEDS.

For making the sides of the beds I would use common pine or hemlock boards, 1 inch thick, 6 inches wide—say such as are commonly used for fencing. For beds long enough to hold 14 sash, boards 16 feet long are about what you want. You can now nail them to oak stakes driven, say, every four feet apart in a straight line, in the usual way of making hot-beds. We have found these stakes convenient made 2 inches square, and about 2 feet long. This allows for driving them into the ground about 18 inches. Of course, the fence-boards are to be nailed to the stakes. Now, I want to tell you that, after using stakes for several years, I am decidedly in favor of something more substantial. The constant exposure to sun and rain and frost very soon rots and uses up the best of timber. For the last two years we have made our beds by boring holes into an edge of the board, every four feet. These holes are bored with a boring-machine, and they reach almost through the board—that is, through it edgewise; therefore the machine must be arranged so as to bore to a depth of five inches or a little more. Into these holes we drive pieces of half-inch iron rod. The cheapest kind of round iron is just as good as any. You will notice that this iron rod, when driven into the board, holds it from warping, which the board is quite apt to do under the influence of wet ground on one side and the hot sun on the other; and the tendency to warp is so great that it very soon pulls the nails from the damp stakes; therefore I like the iron rod much the best. Of course, these iron rods are driven into the ground far enough to make them solid. I have never known them to be drawn out by frost. They are so smooth that the frost does not lift on them as it does on a wooden stake. Now, after having you understand how my iron stakes are used instead of wooden stakes, I am going to suggest to you the plan of not having stakes at all. You will remember our paths are only 16 inches wide; therefore, instead of having the iron stake go down into the ground, we simply bend it like the letter ⊔, letting it go down under the path and up again, to hold the opposite board. Perhaps a drawing will make this a little plainer. In order to get these U-shaped irons, we first have the blacksmith make us some square frames of half-inch round iron, like those in the cut below.

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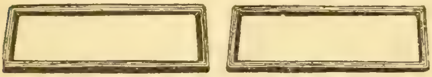
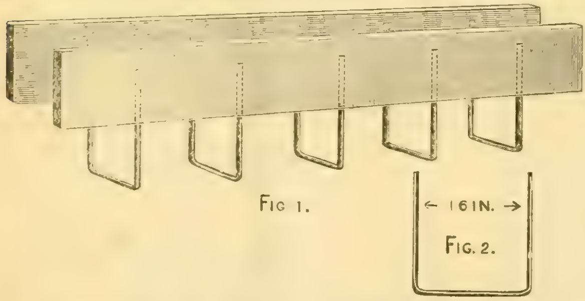
*On our lowest ground we have placed an inch or more of coarse cinders, along the paths that were inclined to be wet.



IRON FRAMES BEFORE THEY ARE CUT IN TWO.

After he has got a lot of them made, of the dimensions 16x20 inside, he cuts each one in two so as to make two U-shaped irons, thus: ⊔ ⊔ Now, these U-shaped pieces, you will notice, go under the path, and reach up and hold the boards on each side of the path. Below is the engraving of two 16-foot boards attached together with the U-shaped irons.



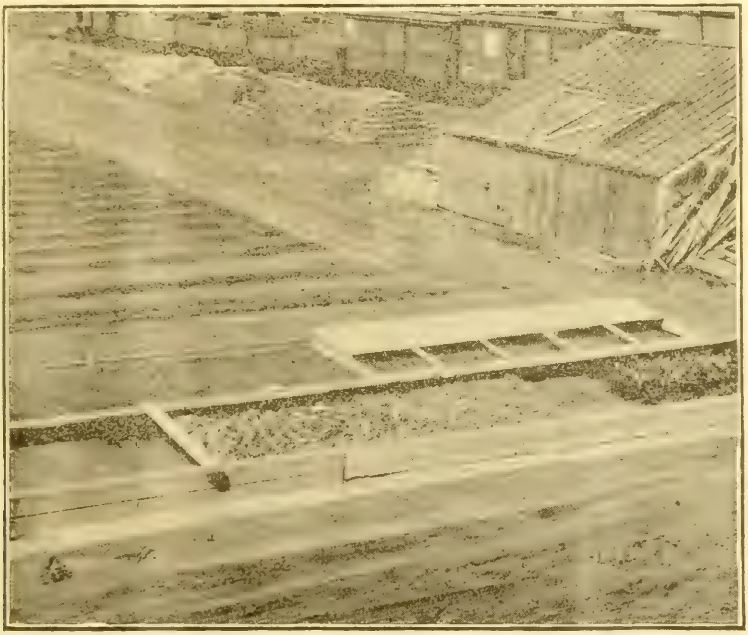
THE WAY THE BOARDS ARE ATTACHED TOGETHER IN ORDER TO MAKE THE PLANT-BEDS.

Where the ends of the 16-foot boards come together, a short piece of board, say three or four feet long, is placed on the inside, so as to lap over the joint, and is securely nailed with nails that will clinch. We will now suppose our ground has been underdrained, with the tiles running north and south, and also the upper layer of tiles running east and west. When you have got this far, you want to plow and harrow and roll that piece of ground until it is just as fine and soft and nice as you can make it; then with a double-moldboard plow—or, if you haven't got it, use a common plow—furrowing out the paths and throwing the fine dirt up into beds. Of course, you run the beds from east to west. After this is done, with the same plow you can throw out the street running north and south through the center. The broad street through the middle, running east and west, will probably have to be shoveled out. If there are any depressions anywhere in the plot, use the dirt that comes out of the streets for filling said depressions. Now stretch your lines from east to west, and shovel out the paths so as to set in the boards that make the sides of the beds. You will need to take very great pains in this matter. If you do not, you will have trouble. If you have any number of sash on hand, I hope they are all of one exact size. If not, you will have the same trouble a good many of us encountered when we first began to work with the movable-comb bee-hives —having frames and hives of different dimensions. If your sash are not all alike, pick out one that is to be your standard, and sooner or later I think you will conclude to make them all of one *length* if you do not have them all of one width. I have purchased sash made in New York, Cleveland, Chicago, and other places; and the general tendency seems to be for a sash 6 feet long by 3 feet 4 inches wide; in reckoning, say 3⅓x6 feet. Now have the standard sash with you when you lay out your beds; and be sure that the boards mentioned above are just far enough apart for sash to catch easily on each board. When my beds were made I exhorted my men to be very careful to have the beds all of the same width; but about as soon as we got to work covering plants, (when a sudden blizzard came up) we found some of the beds so wide that the sash would drop down on the plants; and one bed was so narrow that the sash lapped enough at both ends to let the frost in where the glass projected over the boards. When I called the men who made the beds to account for such a state of affairs, they said they *lost* the measuring-stick I gave them, and so they had to make another themselves. I asked them where they got the *dimensions* for the stick they made themselves. They said they knew it was *right*, because they took it from another bed. I asked what bed, and discovered that they had gone to a very poorly made bed —one of the first—where the stakes had rotted so the boards were out of place. Now, had they come and *informed* me that they had lost the measuring-stick I had given them, it would have saved some bitter thoughts and hard feelings, perhaps, on my part. I suppose you have all had experience in just this sort of stupidity. Come to think, I believe you had better be *around* when your beds are made up. Every bed should be just like every other bed, and every sash should fit nicely, whether it is moved from one bed to another or not. In our work it constantly occurs that some plants will need protection, while some may not; and every sash in a lot is bound to travel, sooner or later, to every *bed* in the lot. It is almost as easy, in the outset, to do things right as wrong. The end-pieces of the beds are simply nailed from one side-piece to the other; I think it is a pretty good idea to have a substantial stake in each corner; then you can cross-nail so as to have the corners strong. If you think it advisable to use a horse for working up the beds, the end-pieces may be left movable; but when your soil is made exceedingly rich with lots of manure and the best materials you can hunt up, I think you will not care to have a horse set his foot on the bed—at least, not very often. When the soil is up to the highest notch, it is always soft and light and friable. The roots of the plants will reach rapidly clear down to the tiles that carry the steam, and weeds can be pulled out so easily that neither a hoe nor any other tool is often needed.

In fact, small boys—or small girls for that matter—will pull the weeds out when they are small, about as cheaply as you can get them out in any other way. Besides, we expect to have these beds so full of growing plants, almost every month in the year, there is hardly a chance for a weed, unless it squeezes in between the crops; and in that case it is easier to "yank him out" as soon as the eye of the gardener gets a glimpse of him than it is to use the hoe or any sort of weeder. If your soil is naturally very sandy you will need to bring on some of the right kind of clay or clayey loam, or perhaps muck from the swamps. If, like ours, it is naturally very clayey, you will need a carload or two of sand. We get a beautiful white sand from the shores of Lake Erie that does not contain any weed seeds at all. Stable manure, of course, contains more or less weed seeds. By composting it, however, until it is very old and thoroughly rotted, we get rid of most of these foul seeds. By the way, it is just fun to see one of the melon or squash family get a foothold in this sort of rich soil. They will come up in a night, like Jonah's gourd, and, almost before you are aware of it, the roots have gone clear down to the drain tile, and clear out under the paths; and pumpkins and squashes and melons make their appearance as if by magic. In fact, with us they seem to keep coming, and I feel so sorry for the poor things, they look so rank and thrifty, that I generally let them go—that is, unless they crowd something else that is of too much value. Let me digress a little.

At one corner of my plant-garden, right opposite our factory, used to be one of the most unsightly mud-holes and deserted spots that there was anywhere in the neighborhood. It also seemed to be a dumping-place for all the old boots, tin boilers, cast-off clothing, and what not. I looked at it a great many times, and longed to try my hand at making a change; so as soon as I made a purchase of the ground I went at it. The picture gives you a glimpse of that corner.

The old building you see in the upper corner at the right is a sort of stable for a coal office. It is not on my premises, so of course I did not meddle with it. The cars beyond indicate the railroad track. The piles of drain tile are my own property, but the railroad company permit me to store on their land, right where we unload them. Well, this deserted corner was on such low ground that I was obliged to raise my beds some two or three feet. Then with under and surface drains I got rid of the water. In fact, I greatly enjoyed making the open ditch that runs up by the side of the roadway leading to the tile-yard. The white stakes you notice along this ditch are made of gas-pipe to indicate where my land adjoins that of the railroad company.



THE DESERTED CORNER AFTER IT WAS RECLAIMED.

The first crop in the corner is curled parsley. Next to that are some young cauliflower-plants, and then a bed of Grand Rapids lettuce. Just back of this first bed is the cloth-covered cold-frame. Inside of this there are Prizetaker onion-plants. The onion-plants did just as well under the cloth covering as those on the left that were covered with glass sash. Onion-plants must not be kept too hot. Without the use of the cloth, however, they would have been killed entirely, as I proved by experiment. You will notice that the cloth is rolled half way down. Back of the cloth-covered bed are early-frame radishes. These stood the frost with little injury, when the onion-plants would have been killed. At the left of these radishes are some more radishes coming up; in fact, they are just putting on the first leaf. At the left of the first bed, reaching from one side to the other, is one of the strips of wood, or plank. rather. that we use when working among the plants. They are made of 1½-inch clear pine. 6 feet long and 8 inches wide. Nailed to each end is a block about 2 inches square. When the plants are so tall that this bar, as we call it, would crush down their tops, we turn it over so it rests on the blocks instead of flat down on the top of the bed. We used about a dozen of these boards on our quarter-acre plot. Half of the dozen are painted slate color. and the other half are painted bright red. I will tell you why. The red ones are made long enough so the blocks at each end will just reach over the side-boards of a bed that is exactly the right width. One of these red bars enables us to see instantly whether, under the influence of frost and dampness, the side-boards have been spreading. If they have been spreading we run an iron rod across the bed, hooking each end over the afore-described iron stakes. This holds the sides rigidly in place, and then there is no more trouble from spreading. In this first bed, at the extreme right end of the picture, you can see one of these iron rods, the ground having been scraped away so as to show it. They are usually three or four inches under the surface of the soil. Sometimes they make a little trouble in spading or forking up the bed, but not very much.

OURSELVES AND OUR NEIGHBORS.

. . . And thy neighbor as thyself.—LUKE 10:27.

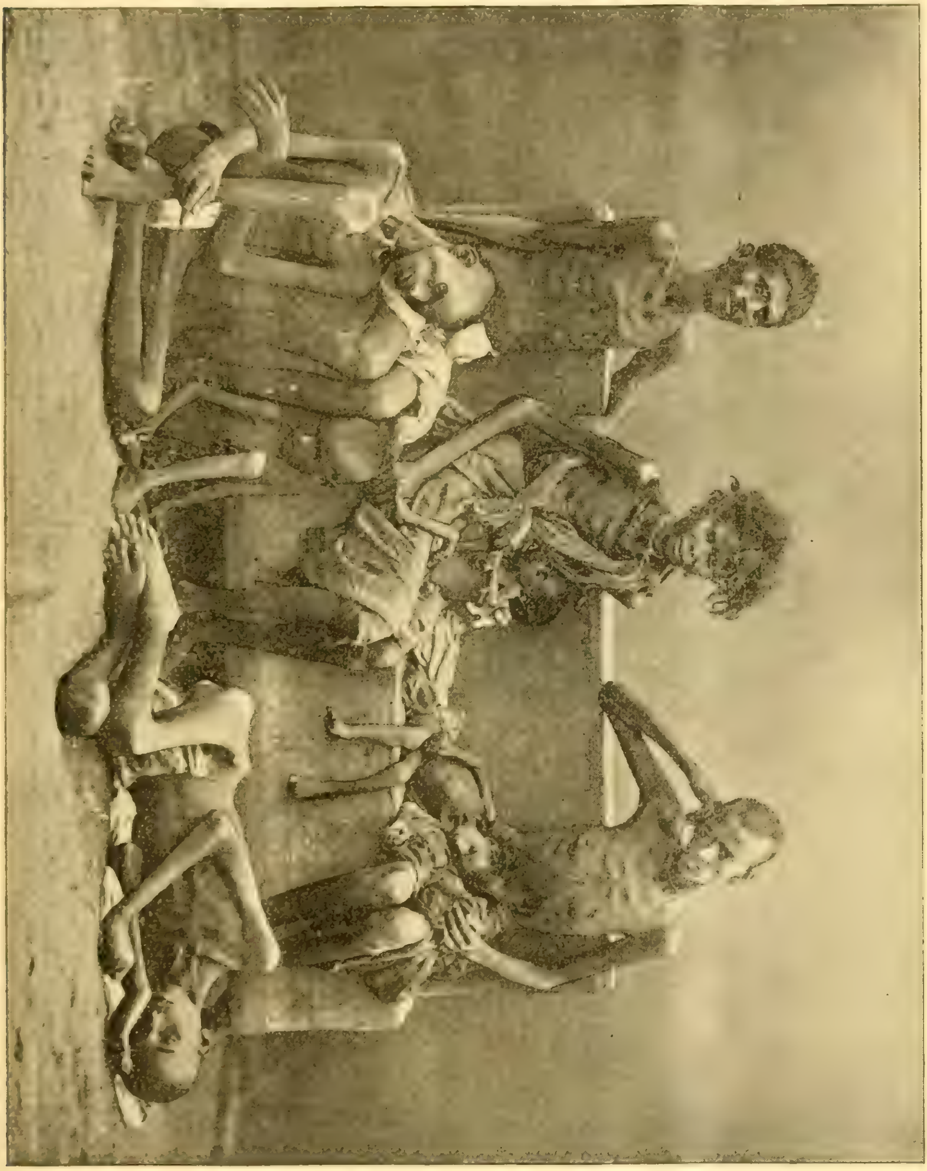
Who is my neighbor?—LUKE 10:29.

The above texts were brought to mind by looking at a picture that appeared in the *Scientific American* of June 18. A few years ago we might have said, "Oh! it is only a picture," and probably let it slip from our minds by thinking likely it was an exaggerated view, or that they tried to make it sensational, or something of that sort. But, alas! the picture is not an ideal one, but the reality itself, for it is one of the half-tone reproductions of a photograph from real life, for we find on it the well-known imprint of Crosscup & West, one of the pioneer firms in making photographs print themselves on the pages of almost every journal in the land. When I first looked at the picture I felt like saying. "May God be praised that the time is here when our periodicals can tell us exactly the condition of affairs in every part of the globe;" and at the same time I felt a wish that this picture should be given the largest publicity. It may shock people, and jar on their nerves, and may be the memory of it will haunt you not only through the day, but in your dreams at night. I hope it will; and that the picture may meet still more eyes (and hearts too. I hope) than it has already through the *Scientific American*, we have thought best to give it a place here.

The matter that comes with the cut was furnished by Frank Van Allen. medical missionary to Madura, India. But before making extracts from the *Scientific American* I wish to consider our texts a little. It is the Bible, God's own word, that makes this somewhat startling demand upon us, that we shall love our "neighbor" as ourselves; and it was Christ Jesus. the Son of God. who explained to us in that well-known parable, that our "*neighbor*" might live on the opposite side of the globe; in fact, that *anybody* is our neighbor who is in trouble. Contrast for a moment the attitude of heart of the people who have no Bible, and who know nothing of New Testament teachings. We are sometimes told little stories about the affection of the dumb brutes. I have tried at times to see whether I could detect it. As a rule an animal will scarcely turn its head when its comrade meets with an accident that deprives it of its life. It might express fright, it is true, under some circumstances; but as a rule it goes on eating its feed or to its ordinary occupation as if nothing had happened. If it does notice what happened, it evidently seems to think it is no concern of its own. There may be exceptions to this rule, but I believe it is quite general among all the brute creation. In the great busy world we many times see brute nature show itself, even among human beings. An accident happens; somebody loses his life or property. There is a class of people who poke along, paying no attention whatever to the sufferings of a comrade, especially if he happens to be a stranger. Such people, of course, can not be Christians. They may be professors, but certainly they are not possessors of the love that should fill the heart of every follower of Christ Jesus. They evidently have never felt any thrill of joy when reading the familiar words that close with the first of my texts—"And his neighbor as himself."

Again, there is a class of people who are very ready to bristle up when something touches one of their own family. I am glad of this, for I like to see people loyal to their brothers and sisters. I like to see them show by their actions that a blow struck at one of the family seems to hit every individual member alike. But even this feeling may be distorted into a kind of low selfishness; but on the whole I like to see it. In the same way we see a whole town all in arms because a single individual has been unjustly used. May be this individual is a very quiet sort of fellow, and one whom nobody knows very much about; but he belongs to the town; and when he receives an undeserved blow, every true citizen springs up as if the blow had been aimed at himself, and our poor friend who has been badly used finds a little recompense in discovering he has a hundred warm friends and earnest champions where he had scarcely suspected one. Christianity, of course, expands and enlarges this feeling. If a man is in trouble he is a brother, and entitled to our sympathy and our aid; and this should be true, to a greater or less extent, no matter what his color or nationality may be. Every little while during my whole life, before I was a Christian, and since I became a Christian, I have been now and then astonished to see how the great wide world—yes, the great *busy* world, would at times drop every thing—yes, all consideration of gain, for the time being, and spring forward to assist some one in distress. My first recollection in this line was during the famine in Ireland. I confess I was boyish enough then to wonder a little why people should care so much about folks away off in Ireland. Later I was shocked at the Chicago fire, and rejoiced at the way in which people whom the world generally considered parsimonious opened their purse-strings. On the whole, I have come to the conclusion a great many times, that, after all, "this is a pretty good world to live in." I think I first heard Prof. Cook make that remark. Somebody, as a matter of course, was telling at length of the injustice, the cheat, and the fraud there is in this world. Our good friend Cook very quietly mentioned some of the good things about our people and our country, and then ended up with the expression I have quoted.

Well, here we are, friends, more than half way through the year 1892. Has the spirit expressed in the two texts at the head of my talk to-day been growing during this 19th century or not? Oh, yes! it *has* been growing. It has been growing through railroads, steamboats, telegraphs, telephones, photographs, and typewriters. We are better prepared than we ever were before to feed the hungry and to clothe the naked. Suppose you take a look at that picture again. May be some of you have felt just a little hungry; but hunger itself—why, it is nothing to seeing our *little ones starving* before our eyes. Think of that mother with that little bundle of flesh and bones in her arms. Perhaps she has been *trying* to give it nourishment to keep the little spirit in its body. Then see that little chap down by the bench, almost out of sight. Why! he is just a living skeleton. But if you look close there is something boyish in his eye, after all. Do you suppose it is possible for him to be a little bit roguish, as your boy and mine are every day of their lives? Why, if a boy of his age could not be roguish now and then, he wouldn't *be* a boy; and then just think of starving the poor little life out of him! That young fellow on the bench, with his head up, looks as if he had some life and ambition left, even yet. If somebody could come forward and tell him what to do, I shouldn't be surprised if you would see him do a tolerably good day's work, even gaunt as he is. His companion at his feet is, perhaps, too near dead; and even yet, if well fed they might be fine specimens of physical humanity. And now look at that poor brother—yes, brother he



THE FAMINE IN INDIA—REFUGEES IN A GOVERNMENT CAMP.

is—who lies on the ground from sheer exhaustion. His bones startle one by their fearful resemblance to a skeleton without flesh or skin either. In the countenance of every one you see an expression of hopelessness. I suppose they are thinking they might as well give up and die, as their friends and neighbors have done right before their eyes day after day, week after week, and, may be, month after month. Well, what are we going to do about it? Really, I do not know; but I have faith to believe that something will soon be done—yes, that something *is* being done; and I want to give you this picture that I might urge you to hurry up and give courage and help to those who are already helping them. Giving money outright is, perhaps, the first thing to be done; and the very next thing is to devise ways and means whereby these people may help themselves. Perhaps my ideas are crude; but in some respects, at least, I know they are sensible, because I have been all my life putting them into practice. Ever since I became a Christian, at least, I have been working and planning that I might be helpful in the best sense of the word to those who need help. I have tried giving money outright; yes, I have given money to the poor friends I meet in our county jail, because I felt sorry for them. But it did not work well. If one were starving, I would give him money, or, better still, food; but it is not the thing to *keep* doing, after all. I once had a queen-bee that could not lay eggs enough to keep her colony going. As her bees were very pretty I boosted her season after season with frames of brood. I thought that, may be, if she got a great big colony, she would get a going and keep going; but she didn't. By and by the colony went down to its normal size. Giving brood did not hit the real trouble at all. Well, I have found by experience that giving somebody money, and then letting him go and forgetting all about him does not, as a rule, make any lasting or permanent improvement. I hardly need tell you of the better way in which I have been working to give the man who does not get along well something to do. Tell him plainly where he is at fault, and teach him to be skillful, and by and by he will be self-sustaining; yes, and if he gets the love of Christ Jesus in his heart, as an inspiration to better things, he will not only be self-sustaining, but he will turn around and help others in the same way he has been helped. I have seen this over and over again. That sort of spirit will lift a whole town—yes, a whole nation; and the great problem that lies before us is to examine into the state of affairs to find out how these people came into this condition where they must starve by the millions, and then we can show them how to get on their feet and stay there; nay, more; to help them feed other nations, and, above all, to help teach other nations.

Perhaps you have wondered why I have of late years taken such a craze to see things grow. If *you* have not wondered at it, I have. Sometimes I have asked, "Where is God calling me, and why has he put it into my heart to love with such an intense devotion the soil and its products?" Just *nineteen days* ago I sowed some radishes. They were Wood's Early Frame, and I put them into one of our plant-beds, and gave them the best chance that my skill and experience could devise, because we were short of radishes, and wanted some as soon as possible. Well, to-day nice little bunches of them were on the wagon; and they were so handsome and fine that people actually came down to the factory for more of them. So there is one thing that will give us a crop fit to eat in nineteen days after the seed is sown. Of course, I know radishes could not go very far in keeping people from starving; but other things could be grown almost as quickly. Perhaps you say, "Why, these people have not the seeds, the water, nor the manure which you use without stint." Don't be too sure. Not many days ago I was talking with a young man whose father owned a spring that was never known to fail, either summer or winter. It ran continually, and made only a nasty, swampy place all through the best part of his farm. Not a dozen rods away was a great quantity of sheep manure that had been lying there for years, unused. This young man wanted something to do. I told him to take that water and sheep manure, and the two or three acres of swampy land, and grow celery. But he did not do it, and I shouldn't wonder if the manure and water and land would be almost useless for a dozen years to come. If I could go among these people of India, I think I could find a similar state of affairs. I think I could find springs and rivers unused. "Oh, yes!" you say again; "but where are you going to get the money to bring the rivers on to these desert lands, as we do?" Now, my friends, some of you will get cross if I suggest that our poor neighbors in India need great capitalists. Why, very likely the only thing that can feed their people is to construct dams that cost a million of dollars each. Then, again, they must have railroads that cost other millions, to equalize the produce. Why, if it were not for our railroads *we* should be in danger of starving—at least some of us; and yet some of you who read Gleanings feel hurt because I sometimes say out loud, "Thank God for railroads." Never mind. Let's not waste time in arguing; let's go to work and help our neighbors in India—the very neighbors that God told us to love as ourselves; let's give up some of our pet plans and projections; let's live in cheaper houses, and ride in buggies that are, perhaps, a trifle shabby—at least until there is no place in the *whole wide world* where people are starving by *millions*.

I will now close by giving the article from Mr. Van Allen, accompanied with the cut from the *Scientific American*, where I first found it.

> The attention of the whole world is directed to the terrible famine in Russia, consequently it is not generally known that a similar scourge is afflicting India. In this country, all the horrors which follow in the wake of starvation occur with fearful regularity every fifteen years, or twice in every generation. The last great famine was in 1876, and it was estimated by the government that five million persons died of starvation and the two diseases that go with it—dysentery and famine fever.
>
> The cycle is completed again. Owing to a partial failure of rains, the fearful calamity of another famine was threatened a year ago. This year the rains have entirely failed; however, the famine is not yet at its height, for there are districts here and there where a slender harvest is possible, which for a few weeks will ameliorate the condition of the people who live in these favored parts. When this small supply of grain is exhausted, the famine, which is already very serious, will grip the whole nation in its withering hand, and there is no hope or help from within their borders until the next rains, nearly a year hence.
>
> No one who has not seen and felt the awful desolation can realize into what a fearful condition a country is plunged by famine. No rain, crops scorched by intense heat; tanks, whose supply of water has been depended on for irrigation, empty, and their beds baking in the blazing sun; all vegetation withered, and rivers and wells dry; the scarcity of food increasing, the price of grains rapidly rising; the people, with their gaunt, emaciated bodies, flocking by the hundreds and thousands to the relief-camps established by the British government. All this misery and suffering because the blessed rain has been withheld. In many places fodder for cattle is unattainable, and the people are

tearing thatches from buildings to feed the famishing animals. In other localities cattle are being killed in great numbers, as their owners are unable to feed them. Also thousands and thousands have died and are dying of starvation. Every effort is made to keep a certain number alive, which must be done at all hazards, for plowing when the next seeding time comes.

How the people are to maintain themselves until the next annual rains is a most serious question, and will doubtless be answered in the usual way—a large part of the population will be supported by the government at the famine-camps. There will be a bare existence of many others, and the death of thousands and even millions of people. The better class will have enough to eat, as they will import grain at enormous prices from other countries.

But the matter of food is not the only problem connected with existence. The question of water becomes a pressing one, and is more serious from the wretched religious caste customs; a high-caste man will not drink from a well if a low-caste man has lowered his water pail into it, and so defiled its contents. This really affects the low-caste man, because he is driven away and not allowed to come near these wells; and his own, being more shallow, have become dry. In this emergency the government comes forward, and, as a part of the relief work, offers to loan money for the digging of wells. The people avail themselves of this offer, and just now there are being dug in one presidency upward of 19,000 wells from loans so made by the government. This money is loaned on thirty years' time, with interest at three per cent per annum, and often without sufficient security, but is done to relieve the distress of this ill-fated nation.

With all that the English government are doing to alleviate the horrors of the famine, there is much unnecessary suffering, which arises from the peculiarities of the people, particularly the higher castes. For a caste man to eat or drink any thing which has been touched by one not of his caste is so degrading that he would rather suffer death. This is a religious matter with him, and there is no doubt but that multitudes die because they will not accept food at government relief-camps or famine-kitchens. Many others of not so high a caste hold out for a while, then come and partake of the wholesome food. This is too much for their weakened condition; their stomachs refuse to digest it, dysentery results, and in a few days they die.

The one disease accompanying a famine, and causing more deaths than either dysentery or actual starvation, is famine fever. It is a late attendant, appearing when the people are emaciated and weak, and for it there is no remedy, and the other remedies have no effect on it. When once begun, it becomes widespread. The weak and ill-nourished who have resisted other influences, and but for this might have lived until the next rains, fall easy victims. It is during this period that deaths are so numerous. The dead lie by the roadside in great numbers; the dying crawl off into the jungles and are eaten by wild animals.

All that a government could do for a famine-stricken country the English government does for India at these sore times, and deserves much praise for the energetic measures taken. Leave on furlough to all officers of government is forbidden. Those absent on leave are summoned; relief works are begun. These consist of building new roads, canals, etc., and are designed to help those who are able to work. During a famine many such public improvements are constructed which the government would not otherwise afford. For those who are not able to work by reason of their reduced strength, debility, or age, a form of relief is established known as the famine-kitchens. There meals are cooked and given away to all who come. For those who are unable to walk, camps are provided; they are generally located near a kitchen, and are a refuge for thousands. These relief works, famine camps and kitchens, are to be found every few miles all over India while a famine lasts. But although the government deals thus energetically with the problem, and grants every alleviation in its power for the distressed country, the suffering and loss of life is extreme.

The Darke County Union Bee-Keepers' Society will hold a grand basket meeting in the fairgrounds at Greenville, Ohio, Friday, Aug. 19, 1892. Vocal and instrumental music suitable for the occasion is being prepared.

GEO. H. KIRKPATRICK, Sec.

GLEANINGS IN BEE CULTURE
Illustrated Semi-Monthly
36 Pages 7×10
$1.00 Per Year

Then shall the King say unto them on his right hand, Come, ye blessed of my Father, inherit the kingdom prepared for you from the foundation of the world; for I was a hungered, and ye gave me meat.—MATT. 25 : 34, 35.

THE *Progressive Bee-keeper* is still progressive—filled with good things.

THE honey crop is a total failure in California, so our correspondents say. Rambler was more fortunate, however, and secured a very fair crop. There will, therefore, be very little California honey on the eastern markets, and the eastern product will have full swing.

WE have just discovered that the Punics soil their capped honey all over with bee-glue; in fact, it looks as if it had been daubed over with a dark-colored dirty varnish. If this is true of all Punics (and Mr. Cowan says as much in another column), it will rule them out of all apiaries.

THE Alley traps have done for us good service this year. We bought a number of colonies this year, the drones of which were not select. Upon all such the Alley trap was placed, trapping all undesirable drones. We then encouraged those colonies that had very fine drones, to rear as large a number as possible.

IT is a very noticeable fact, that commission houses have reported, for the past couple of months, little or no first-class honey on the market, either comb or extracted. We can not believe adulteration is carried on so extensively, otherwise there would be plenty of extracted honey; and while we do not want to deny that adulteration *may* be practiced to a considerable extent, we ought to be careful not to rush to the other extreme.

TRYING to smoke in loafing bees at the entrance does not make them go to work. On the contrary, it causes them to boil all over, and to alight on the nearest objects. They will then rub their abdomens and waists with their legs, showing that the breathing-pores have been irritated by the quantity of smoke. Give them plenty of shade, plenty of room, and a large wide entrance. As an extra inducement, if you are running for comb honey use full sheets of foundation—yes, always do it; and if this does not fetch 'em, insert a bait section—that is, a section partly drawn out, and filled with a little honey from some super where the bees have already gone to work.

AUTOMATIC SWARMERS—ARE THEY A SUCCESS?

WE are more than pleased with the workings of our Pratt automatic swarmers. In our outyard we found that they worked to perfection. The swarmers were attached some ten days previously; and when we went down, the bees had cast swarms, and the same had taken up their abode in their new quarters, filling their combs with brood and honey, just as good bees ought to do. In some cases, the hives to which the swarmers were attached failed to send out swarms. In that event, while the queen was being occupied in the upper hive, the bees went below, built out the frames of foundation, and filled them with honey. So it seems to us that the swarmer is bound to be a success, whether the bees swarm or not. In the one case, it accomplishes the result expected (*i. e.*, hiving the swarm), and in the other case it provides ample room in an extra hive, provided the bees need it; and the result is, that this new hive is filled with honey. Honey, after all, is what we are after.

Well, now, it begins to seem to us as if the automatic swarmer were going to solve the swarming problem, and at the same time keep down increase, and, instead, allow colonies to run up to great strength. Most of our stands to which the Pratt automatic swarmers have been attached are four or five stories high, each story filled with brood and honey. Given these big colonies, and nectar in the fields, and a crop is assured.

Henry Alley deserves credit for sticking to automatic swarmers all these years, when the most of the rest of us regarded them as not practical. They may not prove to be practical, even yet; but the evidence in our yards points that way strongly.

HOW TO KEEP BEES AT HOME FROM THE COUNTY FAIRS.

It will soon be time now to hold our county fairs; and at such times the bees and candy-men are liable to come in conflict. Every year, until last year, our bees fairly swarmed around the candy-stands. Although there was a dearth of honey, we managed to keep the bees at home from the last fair. On the morning of each day of the fair, we blew tobacco smoke into the entrances of every one of our colonies; this was repeated along about noon. The effect was to stupefy the bees, and to make them stay at home. As a further precaution we provided each of the candy-men with wire-cloth paddles, with wire cloth in the centers, the wire cloth being used to prevent the bees from being fanned away or to one side, in hitting at them on the wing. With these, every candy-man was to kill the first bee that came around; for we told them that every bee that went away loaded would bring back a dozen more. The effect of the tobacco smoke and the wire-cloth paddles was magical; and the casual observer would have said, standing around the candy-stands, that not a bee came around. At the previous fair, our bees made so much trouble that the candy-men threatened to sue us for damages, because the bees swarmed around the stands so strong that people were afraid. We have mentioned this before, but it will bear repetition for the benefit of those who have bees located near fairgrounds, and who should do every thing in their power to prevent bees from being a nuisance.

ATTENTION, BEE-KEEPERS.

Just after our last issue had been mailed we received the following from Prof. A. J. Cook, which will explain itself:

> *Dear Mr. Editor:*—I regret to write that our friend Larrabee has been discontinued in his position as experimenter in Apiculture for the United States government. The cause is, the large reduction ($10,000) of the appropriation by congress to the entomological division of the Department of Agriculture. I think this a grave misfortune, as it seems to me that at least one person might be selected and kept for the purpose of aiding this pursuit. There are yet several thousand dollars to be expended in experimental work and research in entomology. I believe if bee-keepers would cry loud enough they would yet get the mere pittance of $1000 annually. A. J. COOK.
>
> Agricultural College, Mich., July 16.

We are thoroughly in accord with Prof. Cook's belief, that, if bee-keepers will cry loud enough, they will yet get the mere pittance of $1000 annually. Mr. Larrabee is and has been a successful bee-keeper; and since he commenced experimental work at the college, for the government, he has rendered *most excellent* service. It is indeed a grave misfortune. The bee-keepers of our land, unlike those of any other nation, have received little governmental aid, and to have this little cut off just when grand work was being and about to be done, is a little hard on our industry. We hope every one of our subscribers will write at once to Prof. C. V. Riley, and Jeremiah M. Rusk, Sec. of Agriculture, Washington, D. C., asking for the continuance of Mr. John H. Larrabee as apicultural experimenter, and that the appropriation of at least $1000 be again granted for the support and maintenance of an apicultural station. The Agricultural College of Michigan is eminently the place for such a station; and we hope that the authorities at Washington will reconsider the matter.

THE HONEY CROP FOR 1892; WHERE THEY DID AND DIDN'T GET THE HONEY.

In response to our request on page 567, asking bee-keepers all over the land to send us a postal card answering our questions as to what the season had been, and what the average colony was up to date, quite a number have answered. The replies show that it is a little early yet to show what the average per colony will be for the season. By collating all the answers by States, and condensing the replies of all, we are enabled to give you the following by States, up to date:

Alabama—fair.
Arkansas—fair.
California—very poor.
Colorado—average.
Delaware—very poor.
Illinois—fair to good.
Iowa—very good.
Michigan—good.
Kansas—good.
Kentucky—poor.
Maine—average.
Maryland—poor.
Minnesota—prospects good.
Mississippi—very poor.
Missouri—poor to fair.
New Hampshire—poor.
New Jersey—poor.
New York—poor to fair.
North Carolina—poor, prospects good.
Ohio—poor to very good.
Pennsylvania—fair to good.
Tennessee—very poor.
Vermont—poor to fair.
Virginia—medium.
West Virginia—fair.
Wisconsin—very poor to good.

On the whole the showing is no worse than last season, and certainly promises to be a little better. Bee-keepers this season have been thrown out of all their calculations. The season has been fully a month later than usual, and clover has *followed* basswood in many localities. The probabilities are, so far as we can ascertain from reports, that clover will be yielding nectar for a considerable period this year. In *our* locality we have had a steady flow from basswood for just about a month, and this is indeed remarkable. It is also evident that bees are getting considerable honey from white clover; and sweet clover never yielded more honey than this year; in fact, we have had the best and heaviest honey-flow in many years. Some of our hives have five stories, all full of bees, honey, and brood. We have been contemplating putting on the sixth story, and hope to be able to do so yet. These five-story colonies were all run for extracted honey, and the bees were made to draw out frames of foundation in every case. If we had given them empty combs perhaps we should have been more astonished than ever at the amount of honey. It has been over ten years since we were able to put on more than the second story to any colony.

IS IT A NEW BEE-DISEASE? SOMETHING THAT RESEMBLES FOUL BROOD; ITS CAUSE AND CURE NOT DEFINITELY KNOWN.

Some two or three weeks ago we found two or three colonies among our Shane-yard bees, the brood of which bore some resemblance to foul brood. The cells were perforated, a little sunken, and the larvæ dead, and having a coffee color. But it lacked two of the decisive symptoms of the real virulent disease; viz., the usual ropiness and the characteristic odor as from a cabinet-maker's glue-pot. Some two or three years ago we found in our basswood apiary brood similarly affected. The larvæ were dead, and of a brown color. At the time, we called it *chilled* brood. It was not contagious, and finally it went away of itself, without treatment. As this diseased brood which we found in our own yard recently occurred during our hottest weather, we could hardly call it chilled brood, although we were thoroughly satisfied that it was not a case of foul brood. In the colony the worst affected, the queen died. A new cell was given them, and in due time another laying queen was in the hive. *Her* brood was all healthy, and every thing seemed to be all right. The disease, or whatever you may call it, subsequently disappeared in the other two colonies. Along about this time a bee-keeper who lived some ten or twelve miles away from here had found some dead brood that tallied with the description above. He brought us a small sample, and asked if we called it foul brood. We stated what we had found in our own yard, and added that we did not think it was any thing of which he needed to be afraid. We suggested that probably the trouble might be traceable to the queen. He had already removed her and introduced another. We desired him to keep us thoroughly posted, and to-day we received a letter which will explain itself.

Mr. E. R. Root:—I have not written to you before concerning the bees which were affected with something which I was afraid might prove to be foul brood, because I wished to write something definite. Number 38 was the worst affected. The queen died, and cells were capped, but failed to hatch. I gave them a young queen, but she was not received, and was then united with another colony, and now is all right. One-third of the brood in every frame of No. 38 at the time the old queen died failed to hatch. No. 88 was given a new queen, and is all right to-day, as is also No. 109. I am very glad that your opinion proved to be correct in regard to its not being foul brood. I should hardly think that it was starved brood with plenty of honey in the hives; and it was not chilled brood.

Bees have been storing honey well for the past week, and a good many are now working on the second tier of sections, but I suppose basswood will soon be over. U. P. PRINCE.

Litchfield, O., July 13.

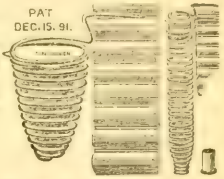
From the above it would look as if there were an ovarian trouble with the queen; that the eggs, at the time they were deposited in the cells, were diseased; and that the disease, after the larvæ began to grow, developed and finally killed the grub just before or just after the cell was capped over.

Perhaps some of our readers may think we were deceived, and that what appeared in Mr. Prince's yard, and also our own, was real foul brood. We have seen that disease too much to be deceived. It *never* disappears of itself—that is, when half of the brood is dead in the comb. With us, changing the queen never had any effect.

Perhaps we might also state, that we have had reports of a similar malady in various parts of the United States. The strange part of it is, that it occurred just before the honey-flow, and it is barely possible that the larvæ had been starved; but this, you say, does not seem so plausible when we consider that the disease went off when the queens were changed; but, mark you, the change of queens was simultaneous with the beginning of the honey-flow.

Now, if this sort of disease has been going on year after year in different apiaries, it is quite probable that it has been mistaken for foul brood; and hence experimenters trying salt, carbolic acid, and a great many other things, conclude that their nostrum cured the disease, and of course rush into print heralding their (?) discovery; when the fact was, if not advanced too far, it would have gone off of itself. This is an exceedingly important matter, and it behooves us to be sure we have foul brood before we begin the expensive process of total extermination. Perhaps Prof. Cook can throw some light upon the cause and cure.

CONTROL YOUR SWARMS!
N. D. WEST'S SPIRAL WIRE QUEEN CELL PROTECTORS AND CAGES.



N. D. West's Spiral Wire Queen-Cell Protectors will do it, and you can RE-QUEEN your apiary during the swarming season. Pronounced the Best by such men as CAPT. J. E HETHERINGTON, Cherry Valley, N. Y.; P. H. ELWOOD, Starkville, N. Y., and others. Cell-Protectors, $3.00 per 100, or 12 for 60c, by mail. Cages, $5.00 per 100, or 12 for $1.00, by mail. Samples of both, with circular explaining, 25 cts. The cages are used for hatching queens in any hive, and are the Best Bee-Escape in use. Address
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Tested daughters of imported queens, of this season's rearing, mated to drones from imported and daughters of imported queens only, $1.25 each; 6 for $7.00; $13.50 for 12. Large and prolific. Safe arrival guaranteed. CLEVELAND BROS.,
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Until April 1st I will sell bee-supplies for nearly one-third off my former list. Send for my new red-mark price list, out Aug. 1, free.
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Queens in August, untested, 75c; six for $3.60; tested, $1.25; select tested, $2.00; extra select, $4.00; the very best, $7.00; imported, $4.00. 15tfdb
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FOR SALE. An apiary of 65 colonies of Italian bees in L. and S. hives, cheap, with fixtures and everything needed in an apiary, with honey crop if bought soon. For particulars address
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6tfdb **Rock Falls, Ilinois.**

☞In responding to this advertisement mention GLEANINGS

WANTED—LADY OR GENT IN EACH county to distribute and collect for Brabant's ladies' toilet cases; 238 articles, worth $1; will send sample and full particulars by mail for 35c in stamps; returnable if not satisfactory; territory free; $3 to $5 per day easily made. Address J. C. FRISBEE, general agent, 172 Maple St., Denver. Col. Reference, A. I. Root, Medina, O. 8-24db

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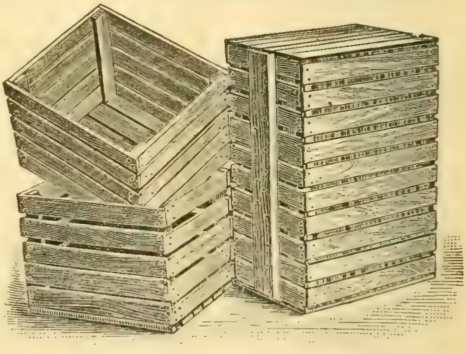
BUSHEL-BOXES.



ALL-SLATTED BUSHEL BOXES.

The above cut shows our new-style *all-slatted bushel box.* We have two other styles; one has slatted bottom and sides with one solid board for each end, called the *slatted bushel box.* The other has solid ends and close bottom and sides and is bound with galvanized iron and called the *galvanized bound box.* These boxes were devised by T. B. Terry for handling potatoes, for which purpose nothing could be handier. The potatoes are picked up into the boxes in the field and left in them till sold. Other crops, such as cucumbers, tomatoes, and apples are being handled in these same boxes. They are of such a size that two go crosswise in an ordinary wagon box. Outside measure is 14¼x16⅞x12½ deep, and they hold a bushel of potatoes level full so they can be piled one upon another. The above cut shows two *all-slatted boxes* nailed up, and a bundle of fifteen along side; 13 of the 15 are in the flat packed inside the other two, and nails of the proper kinds are included. The *slatted* and *galvanized bound* boxes are put up in the same way, only there are only 12 in a package instead of 15. Each package weighs about 100 lbs.

PRICE LIST.

All-slatted bushel box per crate of 15	$1.50
Slatted " " " " " 12	1.50
Galvanized bound bushel box per crate of 12	2.10

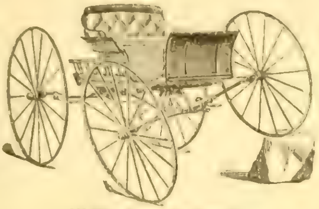
In lots of ten crates, 5 per cent discount will be deducted. Price each, nailed. 15, 20, and 25 cents, respectively. The early order discount will not apply to those boxes, but above prices are net all the year.

A. I. ROOT, Medina, O.

Bishop's Oscillating Road-Wagon. Pat'd March 24, 1891.

Most Durable and Easiest Riding Wagon on the Market.

An oscillating fifth wheel permits the wheels to pass over an obstruction 15 inches high without changing the level of the body.



Write for catalogue.

Body hangs 3 inches lower than on any other gear.

Prices, $40, $45, & $50.

With white chapel body and top, $10 and $20 extra.

A. B. BISHOP,
89 Euclid Ave.,
Cleveland, O.

DOVETAILED HIVES, SIMPLICITY HIVES,

SECTIONS, EXTRACTORS, ETC.
A FULL LINE OF
BEE-KEEPERS' SUPPLIES.
60-PAGE CATALOGUE. 1tfdb

J. M. JENKINS, WETUMPKA, ALABAMA.

☞In responding to this advertisement mention GLEANINGS.

Foundation Reduced 3 cts. Per Pound.

SECTIONS I sold at $3.00 now selling at $2.60. Bingham Smokers at cost. Send for Free Price List of every thing needed in the apiary. 6tfdb **M. H. HUNT, Bell Branch, Mich.**

JENNIE ATCHLEY

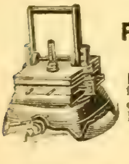
Will send you either three or five banded Italian queens in June, July, and August, 75c each; $4.20 for 6, or $8.00 per doz. Safe arrival and satisfaction guaranteed.

1tfdb **Floyd, Hunt Co., Texas.**

Please mention this paper.

75c. Golden Queens by Return Mail. 75c.

My Golden Italians are good workers, and gentle. Queens are carefully bred from best stock. Three queens, $2.00; six for $3.50; dozen, $6.00. Safe arrival and satisfaction guaranteed. Money-order office, Daytona, Fla. **JOHN B. CASE,**
11tfdb **Port Orange, Vol. Co., Fla.**



HOW TO MAKE
RUBBER STAMPS
AND MONEY.

Use the Latest Improved Process and a **New York Vulcanizer.** Circulars free. Send this advertisement, with 10 cents, and you will receive a Pen and Pencil Stamp with your name, postpaid.

BARTON MFG. CO.,
338 Broadway, New York.

Queens by Return Mail.

Reared in the natural way from swarming cells. Just look at the following very low prices, and order at once.

Tested, each, $1.50; warranted purely mated, each, 80c; warranted purely mated, ½ doz., $4.50; warranted purely mated, per doz., $8.00.

All the above are reared in full stocks from my old reliable honey-gathering strains. Address

WM. W. CARY, Colerain, Mass.

Send for 40-page catalogue. Full line of Bee-keepers' Supplies and Bees at prices way down. 13tfdb

Please mention this paper.

ELMER HUTCHINSON

Can furnish untested 5-banded Italian queens for $1.00 each; 6 for $5.00. Tested queens, $1.50 each; breeding queens, $4.00 each.

13tfdb ***Vassar, Tuscola Co., Mich.***

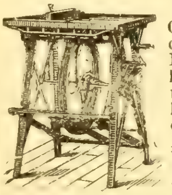
VANDERVORT COMB-FOUNDATION MILLS.

Send for samples and reduced price list.

1tfd **JNO. VANDERVORT, Laceyville, Pa.**

Please mention this paper.

Barnes' Foot-Power Machinery.



Read what J. I. PARENT, of CHARLTON, N. Y., says—"We cut with one of your Combined Machines last winter 50 chaff hives with 7-inch cap, 100 honey-racks, 500 broad frames, 2,000 honey-boxes, and a great deal of other work. This winter we have doubled the amount of bee-hives, etc., to make, and we expect to do it all with this saw. It will do all you say it will." Catalogue and Price List free. Address W. F. & JOHN BARNES, 545 Ruby St., Rockford, Ill.

When more convenient, orders for Barnes' Foot-Power Machinery may be sent to me. A. I. ROOT.
23tfd

Muth's Honey-Extractor.

Square Glass Honey-Jars,
Tin Buckets, Bee-hives.
Honey-Sections, &c., &c.
Perfection Cold-Blast Smokers.

APPLY TO

CHAS. F. MUTH & SON, Cincinnati, O.

Send 10-ct. stamp for "Practical Hints to Bee-keepers."
Please mention this paper.

Get the Best!

Five-banded Golden Italians that will give satisfaction. Queens by return mail, $1 each; 6 for $5; for full particulars send for circular. 13tfdb

CHAS. D. DUVALL, Spencerville, Md.

☞In responding to this advertisement mention GLEANINGS.

A Colorado Bee-Ranch and Fruit-Farm for Sale at a Bargain.

I hereby offer for sale my ranch of 150 acres, including 120 stands of bees in 70 10-frame Simplicity and 50 Dovetailed 8-frame hives, Simplicity size, all transferable; also extractor, combs, supers, and every thing needed for comb honey. Eighty acres are in alfalfa and 40 in grain; full water-right; plenty of water; house of seven rooms; ice-house, cellar, etc. I will sell all in one piece or in tracts. I have apple and peach trees in bearing. The land is all suitable for fruit, being situated in the fruit-belt; alfalfa all around. My market is all within 100 miles. The land is 1½ miles south of Delta. Full particulars will be furnished on application.

MRS. A. A. HODGDON,
Delta, Col.

LOOK HERE!

Sample five-banded Italian bees free in July. Prices of untested queens: One queen in July, $1.00; six, $5.00: August and September, 75c; six, $4.00. Address

J. F. MICHAEL, German, Darke Co., O.

☞In responding to this advertisement mention GLEANINGS.

ITALIAN QUEENS. Untested queens from imported mother, 60c each. MRS. A. F. PROPER,
15d Portland, Jay Co., Ind.

HOW DOES THIS STRIKE YOU?

One Punic, One Italian and one **Golden Carniolan** queen; all three queens and **American Apiculturist** one year for $3.00. 15-16d
HENRY ALLEY, Wenham, Mass.

☞In respon[illegible]tion GLEANINGS.

FOR SALE.

Tested Italian queen, 60c; untested Italian queen, 50c. Italian bees, in 10-frame hive, $4.00. Address 15-16-17d

OTTO KLEINOW, 150 Military Ave., Detroit, Mich.

ITALIAN QUEENS FROM IMPORTED MOTHER, in July, August, and September; untested, 75c each; $6 per doz. Tested, $1.00 each; $10 per doz.
PERCY COVINGTON, Appleton, Cecil Co., Md.

UNTESTED ITALIAN queens reared from imported mothers, ready to mail at 60c; 6 or more, 50c each. W. A. COMPTON, Lynnville, Tenn.

FALL Eggs and Plants, Fowls, Poultry-books and Papers; finely ill. circular free. Address
GEER BROS., St. Marys, Mo.,
14tfdb Or, H. B. GEER, Nashville, Tenn.

Black and Hybrid Queens For Sale.

I have a lot of hybrid-Italian queens for sale at 25c each. GEO. A. WRIGHT, Glenwood, Susq. Co., Pa.

I have 30 mismated Italian queens, all young, and No. 1, 35c each; 3 for 90c; 8 blacks, 20c each; 3 for 50c. JAMES M. GORDON, Belmont, Belmont Co., Ohio.

Italian hybrid queens by return mail, while they last, at 30c each. Postage-stamps taken.
15tfdb N. A. KNAPP, Rochester, Lorain Co., O.

Six mismated Italian queens for sale; 3 hybrids, 3 blacks; 3 for $1.00.
L. WERNER, Edwardsville, Illinois.

HAYES' IMPROVED

FOUNDATION FASTENER.

FASTENS Full Sheets or Starters.—Instructions sent out with every machine. Satisfaction guaranteed. Price, without lamp, **$1.75;** with lamp, **$2.00.** Manufactured by permission. See illustration in GLEANINGS for April 1st, 1891, page 268.
12d **E. J. WEAKLY, Washington, Kan.**

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All advertisements intended for this department must not exceed five lines, and you must SAY you want your adv't in this department, or we will not be responsible for errors. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To exchange 25 colonies of Italian bees, in chaff hives, or 1 Kelley Duplex corn-grinder, No. 3, been used only one season, for a Safety bicycle, 30-in. wheel, must be good as new.
GEO. BEAGLE, Thornville, Perry Co., O.

WANTED.—To exchange for honey or offers, 30 square 60-lb. honey cans, boxed, used but once, at 30c; 100 sawdust-filled wood "dummies," for 1 and 2 L. combs, at 3c.
H. D. BURRELL, Bangor, Van Buren Co., Mich.

WANTED.—Bees on L. frames. State particulars and price to J. SINGLETON, Eddy, New Mexico.

WANTED.—To exchange honey or beeswax for good 2d-hand 10-inch foundation-mill. Write me. H. S. BURTCH, Franklin, St. Marys Par., La.

WANTED.—Several thousand pounds good comb and extracted honey; name kind. Send sample and quote prices at once. J. E. HENDERSON,
15d Roneys Point, Ohio Co., W. Va.

WANTED. To exchange Scotch Collie pups for any thing useful on farm or in bee-yard.
15tfdb N. A. KNAPP, Rochester, Lorain Co., O.

WANTED.—To exchange yellow Italian queens, and strawberry-plants cheap. Bubach, Jessie, Eureka, Haverlands, Warfield, Crescent, Lady Rusk, for poultry, or offers. 15tfdb
MRS. OLIVER COLE, Sherburne, Chen. Co., N. Y.

WANTED.—To exchange one high-grade Safety bicycle; one 49-inch Columbia light roadster bicycle; one Odell typewriter; tested Italian queens, for wax, honey, or offers. J. A. GREEN,
13tfdb Dayton, Ill.

WANTED.—To exchange pure Italian queens, 3 or 5 banded. Write what you have to exchange.
F. C. MORROW, Wallaceburg, Ark.

WANTED.—Offers on a good working, full-blooded, English setter bitch. Cost $25. Would like to have a printing or photographic outfit.
15d W. M. BOLTON, McComb, Ohio.

HAVING come into possession of 3 sets International Cyclopedia, different bindings, 15 vols. each. I will exchange at half price for money or wax. A. H. VAN DOREN, Mons, Bedford Co., Va.
14-15d

WANTED.—To exchange 25 new "Hunt" hives (chaff), about one half nailed together, balance in flat; 250 good straight brood or extracting combs, built from full sheets of foundation; 100 Hoffman frames, wired, and a quantity of other frames; also a honey-extractor, used but one season, and in first-class condition; also 10 Langstroth Portico hives, single wall, in good condition, for Safety wheel, or offers. Reasons for selling hives, etc., have sold all my bees. GEO. N. CORNELL,
Lock Box 6. Northville, Mich.

WANTED.—To rent or on shares, an apiary of about 200 colonies of bees. Gulf States, or California. ENGLISH B. MANN, New Iberia, La.

CAUSE.

80 LBS. PER COLONY

is the record of three of our golden queens, with several others not far behind, while the best record of any other race is 42 lbs. from 3-banded bees.

We are making a specialty of these beauties for business, and are so sure that they will please you that we guarantee them to give

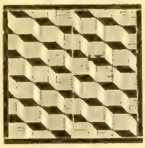
ENTIRE SATISFACTION,

or we will return your money. Could you ask more?

These bees are not banded, but are all yellow on the first four scales, and the fifth is part yellow with an occasional bee with a little yellow on the sixth scale. The above honey record is of white clover in 1-lb. sec's, worth $12 in our market today. No drones near us but the yellowest. One warranted queen, $1; six for $5.

Reference: A. I. Root.

S. F. & I. TRECO,
15-18db **Swedona, Ill.**
☞In responding to this advertisement mention GLEANINGS.



EFFECT.

Sections at $3 per 1000. These are perfectly smooth, and first-class. Brood foundation 45 cts. per lb. All supplies equally low. Goods shipped direct from New York city. 1-18dt.

I. J. STRINGHAM,
92 Barclay St., N. Y.
☞In responding to this advertisement mention GLEANINGS.

ITALIAN QUEENS. Tested, $1.25. Untested, 75c. MRS. A. M. KNEELAND, 12tfdb
P. O. Box 77. Mulberry Grove, Bond Co., Ill.

UNTESTED ITALIAN QUEENS.
From one of Doolittle's best breeders, or imported stock, 50c; ½ doz., $2.75. Safe arrival and satisfaction guaranteed. Reference, Chase Matz, Wells-Fargo Express agent.
H. G. QUIRIN, BELLEVUE, HURON CO., O.

Italian Bees and Queens For Sale.

Untested queens, $1.00; tested, $1.50. Bees, $1.00 per lb. Colony, $5.00. Also barred Plymouth Rock eggs for sitting, $1.00 per 13.
7-16db MRS. A. A. SIMPSON, Swarts, Pa.
☞In responding to this advertisement mention GLEANINGS.

Queens by Return Mail.

Reared in the natural way from swarming cells. Just look at the following very low prices, and order at once.

Tested, each, $1.50; warranted purely mated, each, 80c; warranted purely mated, ½ doz., $4.50; warranted purely mated, per doz., $8.00.

All the above are reared in full stocks from my old reliable honey-gathering strains. Address

WM. W. CARY, Colerain, Mass.

Send for 40-page catalogue. Full line of Bee-keepers' Supplies and Bees at prices way down. 13tfdb
Please mention this paper.

ELMER HUTCHINSON

Can furnish untested 5-banded Italian queens for $1.00 each; 6 for $5.00. Tested queens, $1.50 each; breeding queens, $4.00 each.
13tfdb *Vassar, Tuscola Co., Mich.*
☞In responding to this advertisement mention GLEANINGS.

TAKE NOTICE!

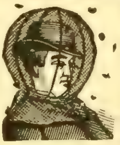
BEFORE placing your orders for SUPPLIES, write for prices on One-Piece Basswood Sections, Bee-Hives, Shipping-Crates, Frames, Foundation, Smokers, etc. PAGE & KEITH,
14tfdb New London, Wis.
Please mention this paper.

Best on Earth.

More than one hundred thousand Bingham & Hetherington Honey-knives and Bee-smokers in daily use. Illustrations sent free.

Bingham & Hetherington,
Abronia, Mich. 7tfdb

GLOBE BEE-VEIL



By Mail for $1.00.

A center rivet holds 5 spring-steel cross-bars like a globe to support the bobinet Veil. These button to a neat brass neck-band, holding it firmly.

It is easily put together; no trouble to put on, or take off. An absolute protection against any insect that flies. Will go over any ordinary sized hat; can be worn in bed without discomfort; fits any head; does not obstruct the vision; folds compactly, and can be carried in the pocket; in short, it is invaluable to any one whom flies bother, mosquitos bite, or bees sting.

Extra Nets, 50 Cents Each. 1tfdb
THOMAS G. NEWMAN & SON,
199 Randolph St., Chicago, Ill.
Please mention this paper.

Bee - Keepers' ❋ Supplies.

We are prepared to furnish bee-keepers with supplies promptly and at lowest rates. Estimates gladly furnished, and correspondence solicited. Our goods are all first-class in quality and workmanship. *Catalogue sent free.* Reference, First National Bank, Sterling, Ill. Address 1-24db
WM. McCUNE & CO.,
Sterling, Illinois.
☞In responding to this advertisement mention GLEANINGS.

---

5 CTS. will get a sample cage of my 5-banded bees; 1 untested 3-banded, 60c; six for $3.00; 1 5-banded, 75c; six for $4.25. Full colonies, nuclei, and supplies cheap; catalogue free.
12tfdb **CHAS. H. THIES, Steeleville, Ill.**
Please mention this paper.

---

500 Colonies of Bees Devoted to Queen-Rearing.

Write for prices on large quantities.

TWO MILLION SNOW - WHITE SECTIONS.

Write for prices on large quantities.

Send for our 24-Page Catalogue of Dovetailed Hives, Smokers, Extractors, Etc.

LEAHY M'F'G CO., Higginsville, Missouri.
Please mention this paper. 5tfdb

IMPORTED ITALIAN QUEENS. $3.25; UNTESTED, 50c.
12tfdb W. C. FRAZIER, Atlantic, Iowa.

75c. Golden Queens by Return Mail. 75c.

My Golden Italians are good workers, and gentle. Queens are carefully bred from best stock. Three queens, $2.00; six for $3.50; dozen, $6.00. Safe arrival and satisfaction guaranteed. Money-order office, Daytona, Fla. **JOHN B. CASE,**
11tfdb **Port Orange, Vol. Co., Fla.**
☞In responding to this advertisement mention GLEANINGS.

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CONVENTION NOTICES.

The Colorado State Bee-keepers' Association will hold its "Honey Day" at Longmont, Sept. 28. H. KNIGHT, Sec.
Littleton, Col.

The eleventh semi-annual meeting of the Susquehanna Co. Bee-keepers' Association will be held at Rush, Pa., on Thursday, Sept. 1, at 10 A. M. All are cordially invited; and any who have fixtures which they think are better than those of old, bring along a sample. H. M. SEELEY, Sec., Harford, Pa.

The Southwestern Wisconsin Bee-keepers' Association will hold its next annual meeting in Boscobel, Grant Co., Wis., on the 13th and 14th of January, 1893, commencing at 10 A.M. All members of the association are requested to be present, as the following officers are to be elected: President, vice-president, secretary, assistant secretary, and treasurer. Blank reports will be sent to each member of the association for 1892, with instructions. A cordial invitation is extended to all bee-keepers, and especially to those who would like to join us. Each member will be notified at least one month before said meeting. BENJ. E. RICE, Sec.
Boscobel, Wis.

Harvest Excursions

—WILL BE RUN ON—

August 30th & Sept. 27th,

—TO THE—

Pecos Valley

The Fruit Belt of New Mexico.

Tickets may be bought at any important railway station, in the Northern or Eastern States, to

EDDY, NEW MEXICO,

and return—**good twenty days**—at

One Fare for the Round Trip.

Don't miss this opportunity to see the **richest** and **most fertile valley,** and the most complete and elaborate system of Irrigating Canals in the United States. For particulars, address

G.O. SHIELDS, Eddy, New Mexico

Please mention this paper.

Queens Yellow to the Tip

Mated to Drones Yellow all over.

FROM an entirely different strain is what that QUEEN SPECIALIST

Jas. Wood, North Prescott, Mass.,

Is sending **by Return Mail at 75 cts. each.** Every queen warranted purely mated, and safe arrival guaranteed. I am five miles from any other bees, and none but selected Drones allowed to fly.

Please mention this paper

GOLDEN ITALIAN QUEENS.

60c each, or 6 for $3.00. Italians same price. None after Sept. 30. ALBERT HINES, Independence, Ia.

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All advertisements intended for this department must not exceed five lines, and you must SAY you want your adv't in this department, or we will not be responsible for errors. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements. We can not be responsible for dissatisfaction arising from these "swaps.'

WANTED.—To exchange for honey or offers, 30 square 60-lb. honey cans, boxed, used but once, at 30c; 100 sawdust-filled wood "dummies," for 1 and 2 L. combs, at 3c.
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15tfdb N. A. KNAPP, Rochester, Lorain Co., O.

WANTED.—To exchange yellow Italian queens, and strawberry-plants cheap. Bubach, Jessie, Eureka, Haverlands, Warfield, Crescent, Lady Rusk, for poultry, or offers. 15tfdb
MRS. OLIVER COLE, Sherburne, Chen. Co., N. Y.

WANTED.—To exchange one high-grade Safety bicycle; one 49-inch Columbia light roadster bicycle; one Odell typewriter; tested Italian queens, for wax, honey, or offers. J. A. GREEN,
13tfdb Dayton, Ill.

WANTED.—To exchange pure Italian queens, 3 or 5 banded. Write what you have to exchange.
F. C. MORROW, Wallaceburg, Ark.

WANTED.—To exchange a new hand-cart with springs, will carry 500 lbs., cost $14.00; would make an excellent honey-cart, for $8.00 worth of honey, or offers. DEAN FERRIS, Peekskill, N. Y.

WANTED.—To exchange 25 new "Hunt" hives (chaff), about one half nailed together, balance in flat; 250 good straight brood or extracting combs, built from full sheets of foundation; 100 Hoffman frames, wired, and a quantity of other frames; also a honey-extractor, used but one season, and in first-class condition; also 10 Langstroth Portico hives, single wall, in good condition, for Safety wheel, or offers. Reasons for selling hives, etc., have sold all my bees. GEO. N. CORNELL,
Lock Box 6. Northville, Mich.

WANTED.—To exchange 1 "11 A Little Giant" hand and power feed-cutter, capacity 1 ton per hour—Ross Mfg.: 1 No. 3 power feed-mill, with burrs extra for grinding green bone; also 1 hand mill for grinding bone, shells, or grain, Wilson Bro. pat.; 1 Dederick pat. toggle lever hay-press, all in first-class condition, and some never used but very little, for first-class live stock, or offers.
L. M. RUSSELL, 800 E. Preston St., Baltimore, Md.

WANTED.—To exchange one 55-in. Columbia light roadster bicycle, made by the Pope Mfg. Co., Boston, Mass., with full nickel-plated ball bearings, tool-bag, tools, rubber, and lamp, cost $145.00, for pony, or offers.
H. P. KETTERING, Greensburg, Westm'd Co., Pa.

WANTED.—I would desire to work with a competent apiarist for a season or two. Address
16-17d P. T. HANNA, Epworth, Iowa.

WANTED.—To rent or on shares, an apiary of about 200 colonies of bees. Gulf States, or California. ENGLISH B. MANN, New Iberia, La.

A goodly number of first-class pure-bred yellow-to-the-tip queens, this season's rearing, will breed yellow queens, and suitable as the best of breeders, now on hand at $1.50 each. Untested, 75c each. Satisfaction, or money refunded. W. H. LAWS,
16-17d Lavaca, Ark.

TO exchange tested Italian queens, 3 to 5 bands, 50 to 75c; fdn. 36c; for offers. 16-17-18d.
F. C. MORROW, Wallaceburg, Ark.

APIARY AND FARM FOR SALE

Sixty colonies blacks and Italians, mixed; L. frames; Simplicity and Dovetailed hives; with farm of 57 acres, two-thirds bottom flat land, with hills covered with timber; every way you look you can see from 3 to 10 miles; 4 miles from town; any quantity of poplar, basswood, hard and soft maple, sourwood, elm, chestnut, hickory, sumac, goldenrod, etc., within range. What I know about bees: I think 600 stands by the house would not be overstocked; no danger of competition, only 5 or 6 box hives within 3 or 4 miles that I know of. Satisfactory reasons for selling. For any other particulars write, or come and see me. $950.00 is the price. 200 fruit-trees, mostly young, many commencing to bear. Apply to **J. HAMMOND,**
BUENA VISTA, SCIOTO CO., O.

☞ In responding to this advertisement mention GLEANINGS.

Trained Setter Bitch For $ale.

Thoroughly broken on woodcock, snipe, quail, and partridge, by one of the best trainers in the U. S. Also litter of Pointer puppies, out of registered stock. Write for price and particulars.
E. A. BOAL, Hinchman, Mich.

FOR SALE AT $1600.

My residence at Plattsmouth, Nebraska, consisting of 5 acres of land; 2½ acres in cultivation, balance in natural timber; one good house, 14x18, 1½ stories high, kitchen 10x14; 140 bearing grapevines, 65 apple-trees, all 4 years old; a good well; one tool-house, 10x10. Also 80 colonies of Italian bees, all in movable-comb hives, mostly in 2-story chaff hives of 10 frames, Simplicity size; combs are nice and straight. Bees are in splendid condition. No foul brood ever existed in this locality. Good honey market. No large bee-keepers near. Plenty of white clover abounds, and plenty of apple orchards within 3 miles of apiary. Residence located inside of boundary of a city of 10,000 inhabitants, and 25 miles south of Omaha. Will sell the apiary alone for $500.00, or place separate for $1100.00, or all together for $1600.00, apiary fixtures included. Terms of sale, cash down. Further particulars on application. Please inclose stamp for your reply.

Address **J. M. YOUNG,**
16-17d **PLATTSMOUTH, BOX 874, NEB.**

☞ In responding to this advertisement mention GLEANINGS

ADDRESS
W. B. WEED,
HARTFORD, WASH. CO., N. Y.,
For——

Did you notice what I said in GLEANINGS in July—100 Hybrid Queens 50c each, 3 for $1?
People write me,
"*More than satisfied; delighted.*"
"*Beautiful!*" "*I am well pleased.*"

So am I; for I have 3 tons of honey so far, and more coming in every day it don't rain. My bee-keeping neighbors boasted a good deal of "My bees," "My Italians," etc., but they are after my queens fast enough now.

Young queens from my best honey-gatherers, large, gentle, $1.50 each; untested $1.00. 16d

☞ In responding to this advertisement mention GLEANINGS

UNTESTED ITALIAN queens reared from imported mothers, ready to mail at 60c; 6 or more, 50c each. W. A. COMPTON, Lynnville, Tenn.

Oregon Bee-Men. Send us your name and address. We want to correspond with you concerning honey. We are ready to make outright purchases of both comb and extracted honey in any quantity. If you do not care to sell, we will handle for your account. All we want is to get plenty of Oregon honey; if possible, we want to handle the entire crop. We are satisfied the result would be mutually advantageous. 16-17d

LEVY, SPIEGL & CO.,
113-115 Front St., Portland, Ore.

WANTED.—Best grade of comb and extracted honey. WALTER S. POUDER, Indianapolis, Ind. 15-16d

HONEY COLUMN.

CITY MARKETS.

CINCINNATI.—*Honey.*—There is ready sale for extracted honey at 5@8c on arrival. Demand exceeds the arrivals. We solicit shipments. Demand for comb honey is slow and prices nominal at 12@15c for best white in the jobbing way. *Beeswax.*—There is a slow demand at 23@25c for good to choice yellow on arrival. Arrivals are good.

CHAS. F. MUTH & SON,
Aug. 10. Cincinnati, O.

ALBANY.—*Honey.*—We have received one consignment of new comb honey. The quality is only fair clover, and we have not yet had an offer on it. There is not much demand for honey this hot weather, but we have had a number of inquiries for new honey from out-of-town trade. We have no new extracted yet, and our stock of old is exhausted.

Aug. 11. CHAS. MCCULLOCH & CO.,
393, 395, 397 Broadway, Albany, N. Y.

KANSAS CITY.—*Honey.*—Receigts of new comb honey light; demand fair. We quote No. 1 1-lb. comb, white, 15@16; No. 2, white, 13@14; No. 1 comb, amber, 14@15; No. 2 amber, 12@13. Extracted, white, 7c; amber, 5@6. *Beeswax*, 20@25.

Aug. 8. CLEMONS-MASON COM. CO.,
Kansas City, Mo.

CHICAGO.—*Honey.*—Some consignments of new comb on the market, but there is not much trade in it. 15c is asked for best white; dark colors sell down to 10@12c. Extracted, without special change at 6, 7, and 8c. *Beeswax*, 25c.

R. A. BURNETT,
Aug. 9. 161 So. Water St., Chicago, Ill.

NEW YORK.—*Honey.*—No demand for comb honey yet. Some little demand for extracted honey. Market pretty well cleaned up of N. Y. State and Western honey; Southern honey arriving quite freely. *Beeswax*, firm at 26@27c. Clover and basswood extracted, 7½c; buckwheat, 5@5½c; Cal. ex., 7½@8c; Southern, 60@70c per gal.

Aug. 8. CHAS. ISRAEL & BRO.,
110 Hudson St., New York.

NEW YORK.—*Honey.*—No supply of comb honey yet. Might place a few small lots at 14c for No. 1 fancy white. Southern extracted, 60@70c; orange bloom and palmetto, 7@7½; Cal. light amber, 7½c. *Beeswax*, 27@28c. Market very quiet.

Aug. 9. F. G. STROHMEYER & CO.,

KANSAS CITY.—*Honey.*—There is a light supply of honey, with a good demand. Price of 1-lb. white, 16c; extracted white, 6@7; dark, 5@6. There is no beeswax on the market. The new crop of honey is arriving and is very fine.

Aug. 9. HAMBLIN & BEARSS,
514 Walnut St., Kansas City, Mo.

BOSTON.—*Honey.*—Demand for honey is very light. We have a very light supply on hand. From present reports crop is light throughout New England. No change in prices.

Aug. 9. BLAKE & RIPLEY, Boston, Mass.

ST. LOUIS.—*Honey.*—Excellent demand from all sections for extracted, which we are selling at 5¼@5⅞, the latter for straw-colored. No demand for comb. *Beeswax*, prime, 26c.

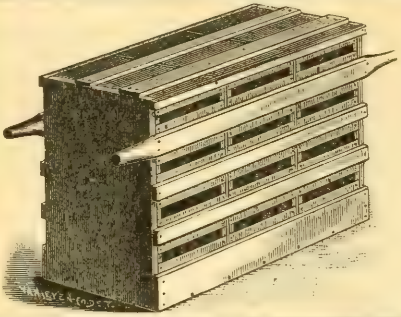
Aug. 8. D. G. TUTT GRO. CO.,

DETROIT.—*Honey.*—Best white honey selling slowly at 12½@13c; extracted, 7@8c. *Beeswax*, 25@26c.

Aug. 8. M. H. HUNT,
Bell Branch, Mich.

FOR SALE.—3000 lbs. basswood honey mixed with about one-third white clover. The honey is thick, extra quality, put up in new 60-lb. cans, 2 cans in case, at 8c per lb. F. W. HOLMES,
Coopersville, Ottawa Co., Mich.

WANTED.—One hundred thousand pounds choice comb and extracted honey. Name source from which your honey is gathered. Mail samples at once and quote prices. 13tfdb
J. A. BUCHANAN & SONS, Holliday's Cove, W. Va.



If You Wish to Know

How to get the honey off the hives with the least labor and annoyance, how to store it and care for it, how to prepare it for market, what kind of packages to use, and how to send them to market in such a manner that they will not even be soiled, much less the contents injured, buy the book **"Advanced Bee Culture,"** and read the chapter entitled "From the Hive to the Honey Market." Remember, too, that this is only one chapter out of 32. Price of the book, 50c. The **Review** one year and the book for $1.25. For $1.75, the book, the **Review,** and a fine, young, laying Italian queen will be sent. Queen alone, 75c.

W. Z. HUTCHINSON, Flint, Mich.

QUEENS FREE! Italians, untested, 70 cts. Warranted, 80 cts. Tested, $1.00. **One Choice Breeder Given Away** with each dozen. **Five-Banded Golden Queens, $1 to $2.** Write for lower prices. Satisfaction guaranteed. Bees, 80c per lb. **F. C. MORROW, Wallaceburg, Ark.**

Please mention this paper. 10tfdb

BEE SUPPLIES RETAIL —AND— WHOLESALE.

Everything used in the **Apiary.** Greatest variety and **largest** stock in the West. New catalog, **54** illustrated pages, free to bee-keepers. E. KRETCHMER, RED OAK, IOWA.

Please mention this paper. 2tfdb

QUIGLEY'S GOLDEN QUEENS.

Are large, beautiful, and prolific. The bees are industrious, gentle, and hardy. Warranted purely mated, each, $1.00; 6 for $5.00. Untested, each, 70c; 3 for $2.00. Satisfaction and safe arrival guaranteed. Circular free.

14tfdb E. F. QUIGLEY, Unionville, Mo

EXTRA FINE QUEENS.

Now is the time to introduce a strain of Italians that will reap you large harvests even in poor seasons. Send a trial order and be convinced. Queens warranted purely mated, each, 80c; six, $4 00; doz., $7.00. Order now; pay on arrival. Safe arrival and satisfaction guaranteed. 14tfdb *F. B. YOCKEY, North Washington, West'd Co., Pa.*

DR. J. W. CRENSHAW,
Versailles, - Kentucky,
Offers for Sale

Untested Italian Queens at $1.00 each through May and June; after, 75c each. Safe arrival guaranteed. Queens raised only from Imported mother. Drones only from selected and tested mothers.

Also CELERY PLANTS from July to September, at $2.00 per M. 7-18db

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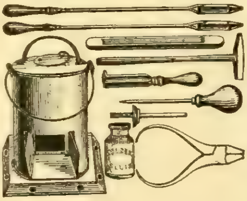
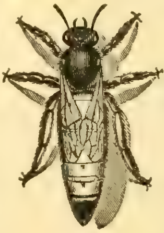


OATMAN'S
SOLDERING AND REPAIR KIT

Consists of fire-pot, soldering-irons, solder, and soldering-fluid, with tools compl'te as shown in cut, with directions for soldering different metals, and how to keep your soldering-irons in shape. Whole kit, boxed, 12 lbs. Shipped on receipt of $2.00. Agents wanted.

O. & L. OATMAN,
8-7db **Medina, Ohio.**



WESTERN BEE-KEEPERS' SUPPLY HOUSE.

ROOT'S GOODS can be had at Des Moines, Iowa, at ROOT'S PRICES. The largest supply business in the West. Established 1885. Dovetailed Hives, Sections, Foundation, Extractors, Smokers, Veils, Crates, Feeders, Clover Seeds, etc. Imported Italian Queens. Queens and Bees. Sample copy of our Bee Journal, "THE WESTERN BEE-KEEPER," and LATEST CATALOGUE mailed FREE to Bee-keepers.

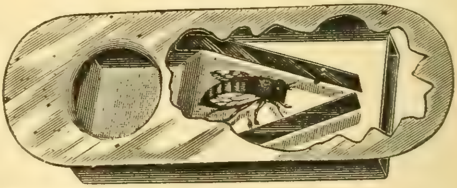
JOSEPH NYSEWANDER,
Des Moines, Iowa.

Porter's Spring Bee-Escape.

We guarantee it to be the best escape known, and far superior to all others. If, on trial of from one to a dozen, you do not find them so, or if they do not prove satisfactory in every way, return them by mail within 90 days after receipt, and we will refund your money.

PRICES:—Each, by mail, postpaid, with full directions, 20c; per dozen, $2.25. Send for circular and testimonials. Supply dealers, send for wholesale prices.

10tfdb *R. & E. C. PORTER, LEWISTOWN, ILL.*



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Weekly "American Bee Journal" ✻
—32 pages—$1.00 a Year—

The Oldest, Largest, Best and Only Weekly Bee-Paper in America. Sample Copy Free.

The American Bee Journal,

Address **GEORGE W. YORK & CO.,**
✻ 199 Randolph St., - CHICAGO, ILLS.

GLEANINGS IN BEE CULTURE

A Journal Devoted To Bees and Honey and Home Interests.

Illustrated Semi-Monthly
Published by A. I. Root.
$1.00 per Year. Medina Ohio

Vol. XX. AUG. 15, 1892. No. 16.

STRAY STRAWS

FROM DR. C. C. MILLER.

THAT SILVER LINING hasn't come.

"THE BEE-AGE" never came to any age. Died before it was born.

SO YOU'VE LEARNED, at Medina, that you can't smoke in bees to work. Told you so long ago.

ONE PAGE of *A. B. J.* for July 28 is made very bright by the face of Mrs. Jennie Atchley. She looks as good-natured as she writes.

JULY 30. This morning I find my self-hiver empty, queen and swarm having moved back into the hive, bag and baggage. But it doesn't seem to me that a queen would often get out of that trap as she did.

CLEARING SUPERS of bees is ordinarily best done, the *B. B. J.* thinks, by means of cone escapes, letting the bees escape outward to find their own way back to the hive—practically my little mosquito-tents.

HAVE YOU SENT to father Langstroth the amount you promised? If you made no promise, it would be a nice thing anyhow to send something to him. We owe him much, and he ought not to lack in his few last years.

JUST THINK of A. I. Root encouraging the tobacco habit in his bees by giving them a social smoke, morning and noon, each day of the county fair! Then I s'pose each bee gets a smoker that swears off afterward.

AS A BUSINESS to accompany bee-keeping, Doolittle says in *A. B. J.* that raising small fruits will not work; but that raising small-fruit plants for sale works well. But he adds, "If I were to choose any business to go with bee-keeping it would certainly be farming."

TOO BAD, just as we've got a real live bee-keeper at work making experiments at Michigan Ag'l College, if the government should stop the whole business. Be sure to write a letter to Uncle Jerry and Prof. Riley, and tell them we need J. H. Larrabee.

LATEST BULLETIN from the self-hiver. Aug. 5 I find a few eggs and brood in all stages in No. 70, six sealed queen-cells and one unsealed, old queen dead on the bottom of the hive, and beautiful young queen hatched. I think the self-hiver will come out ahead yet.

THAT OLD ITEM is still going the rounds, that in Australia the bees gather all the year and soon learn not to store honey, and so constant importations must be made of green bees that haven't yet learned the ropes. Is a lie round, that it never stops when once started rolling?

TWO SWARMS issuing at about the same time, where self-hivers are used, C. H. Dibbern agrees with Henry Alley, will always return to the right hives. They'll sometimes both go to the same hive when I pick up and cage the queens. Why should there be any difference when the queens cage themselves?

"AUTOMATIC SWARMERS" are talked about on p. 593. I like the way GLEANINGS encourages new inventions, but please draw the line at swarmers. Non-swarmers and self-hivers may be good things, but bees swarm entirely too much already, and they're automatic too, so we don't need any other "automatic swarmer."

THE PLAN of working two queens in a hive, as given by Mr. Wells, of England, according to "A Lanarkshire Bee-keeper" in the *Journal of Horticulture*, is practically the Baird system, nearly forty years old. The principal difference seems to be the intermingling of the bees of both queens in the super in the Wells system.

BLOWING THE BREATH on bees slowly has a very different effect from a sharp blast, as R. W. McDonnell says, p. 580. My practice for years, when I wanted to get the bees off any particular spot on the combs, has been to make a rapid succession of forcible puffs, much like a stuttering man making a frantic effort to get out the letter p.

WASHINGTON is the place of the next North American convention. Time not set. Frank Benton thinks it better not go at the time the G. A. R. meets, as there will be too much of a jam. December is now talked of, when other meetings will give reduced rates. Better stand the jam if rates are enough lower. But December's a good month.

A. Y. BALDWIN says, in *A. B. J.*, that his bees were at the starvation point July 4, and he was about to despair; but a "stray straw" said, "Don't be discouraged;" and as "drowning men catch at straws" be immediately ordered a barrel of sugar and continued feeding. Now I wonder if he'll charge up that sugar to me if his bees fail to store.

DOOLITTLE says, in *A. B. J.*, that a swarm issued without a queen from one of his colonies, he having removed the queen a few hours previously. I had a swarm once issue within about an hour after I removed the queen; but in that case I think they had perhaps not learned yet that they were queenless. I had, however, another swarm issue and hang on a bush two or three days, and I *think* they had no queen.

MR. A. LEGGOTT doubts that old bees ever leave the hive when swarming. A California newspaper and the *A. B. J.* are so earnest in convincing him that old bees do swarm, that they get all tangled up and finally leave it that only old bees go with the swarm. Bro. Leggott, just get down and watch a swarm issuing, and then when you see old bees coming out with wings so ragged they can hardly fly, you'll know for yourself.

Some very small bees were sent by W. C. Frazier to the *A. B. J.* and thence to Prof. Cook, who says if all are small the queen is at fault; but if only part are small, then it probably arises from their being raised in comb so old that the cells have become too small for full development. In view of the many proofs that old combs raise as large workers as any, would it not be more reasonable, professor, to say that, in some way, the comb had been bent so as to cramp the cells?

Frank Benton, in *Api.*, says migratory bee-keeping is followed to a large extent in Carniola. He says: "Whole apiaries, consisting of several hundred hives, are transported to distant pastures in one or two nights. Sometimes the railway lines are used, and I have seen a bee-train, mainly of flat cars, bearing some 5000 colonies of bees from the northern valley of the Carnic Alps to the central plains, where the fields are white with buckwheat in August and September."

MY HEAD-TROUBLE.

CONCLUDED FROM PAGE 572.

When 75 years old, the blind piles, of which my physician spoke in my youth, became only too apparent. I suffered so much that I seldom went abroad, and spent most of my time in a reclining position; and I was able to get home from my last attendance at church only by planting my hands and knees on the bottom of the carriage.

While thus suffering, my friend Dr. G. W. Keeley, of Oxford, urged me to put myself under the care of Dr. G. R. Prezinger, of Greenville, Ohio, who had successfully cured many persons similarly afflicted. At first I declined to be treated, saying I was too old to be cured, and believed it better, not to leave *well* enough alone (for there was no well enough about my case), but to leave *bad* enough alone. Interviews with parties at Oxford, however, who had been entirely cured by him, changed this decision. An examination, made by the doctor in the presence of Dr. Keeley, showed that I was suffering severely from bleeding ulcers and numerous piles, one of which had been protruding for nearly a year. On the doctor s assuring me that he could effect a radical cure, I placed myself under his care. No cutting, burning, or clamping operation was performed; and I received only one treatment a month. I suffered no pain worthy of mention.

My family physician had before this assured me that my melancholy came mainly from a diseased state of the rectum; but he failed to cure me. Before I was fully relieved by Dr. Prezinger I fell again into my usual morbid condition, and did not see him for about two years.

While under treatment I conversed with many of his patients, and for the first time became aware of the intimate connection between melancholia and rectal disease. I believe that, without a single exception, all with whom I conversed admitted that they were sufferers from mental depression.

Some confessed even to suicidal inclinations. I remember one in particular who said, "I often thought of taking my life, and was deterred only by apprehensions of what would become of my dear wife and our poor little children!"

How often we hear it said, that *religion* is a leading cause of so much melancholy and insanity! I firmly believe that, where one person is made insane by perverted religious views, many are kept sane by the consoling hopes of the gospel of Christ. If a man has no belief in a loving Father, and no fear of "that dread bourne from which no traveler returns," why should he wish to live on, when to live is only to be wretched? Why should he not believe with Hume, that suicide is only "the diversion of the current of a little red fluid"? Very often no motive is strong enough to prevent a man from taking his life but consideration for those who depend upon him for support, and the horror of leaving to family and friends a suicidal legacy.

Removing from Oxford to Dayton, and recovering again, I sought further treatment, and seemed at last to be almost if not completely cured. I had better health, and for a longer period than I could remember to have ever enjoyed in all my previous life; and for the first time in many years I strongly hoped that I should have no return of my former troubles. But after an interval of a year and a half the old symptoms returned. I fought them again in every way that I could, but, as usual, the battle was not won. Clouds and darkness settled upon me so that I could say, in the words of the 88th Psalm, "My soul is full of trouble; I am counted with them that go down into the pit: I am as a man that hath no strength. Thou hast laid me in the lowest pit, in darkness, in the deeps. Thou hast put mine acquaintance far from me; I am shut up and I can not come forth."

Previous to this last attack I always expected, even when most exuberant, that, sooner or later, I should again fall under the power of the old disease. Many of my readers will naturally think that such an expectation, suspended over my head like the sword of Damocles, must inevitably have caused me constant and distressing apprehensions; but, instead of this, scarcely any fear of the future disturbed me. I could almost always say, "Sufficient unto the day is the evil thereof," and I was very much like a playful child. Go to it and say, "Dear little child, this is a very sorrowful world! How can you, then, be so light-hearted when so many trials are in store for you?" The happy child will not suspend his sports—if he can help it—long enough to listen to your sad forebodings.

I have often thought, that, but for the special mercy of our loving Father in freeing me, when well, almost entirely from dismal apprehensions, I could never have lived and retained my reason so long beyond the period usually allotted to man.

I should here say, that, in my worst attacks, I was never subject to any illusions. I always knew that physical causes mainly were at the bottom of my sufferings, and felt sure that, as soon as these disappeared, I should be happy again. In my cheerful moods I seldom felt any solicitude about the future; yet when under the power of disease it was almost impossible for me to even conceive how I could ever be well and happy again.

While the nauseated stomach rejects the most wholesome food, the patient knows all the time that this is only disease; but this knowledge not only fails to stimulate his appetite, but it seems almost impossible for him even to imagine how he can ever want to eat again.

Since my recovery, in the fall of 1887, I found that Dr. Prezinger's treatment had not been continued long enough to complete the cure; but as soon as the relapse was fully established, no persuasions of my family could induce me to submit to further treatment.

In revising this statement, I ought to correct what I said about there never being but one issue to an attack after its incipient stages were clearly developed. In the fall of 1853 I was as much depressed as I had ever been, when, by the kindness of friends, I was able to visit a brother who was residing in Matamoras, Mexico. While traveling by steamboat, railroad, and stage-coach to New Orleans—a journey which then occupied over a week—I recovered entirely before I reached that city, and had an unusually long interval of complete relief. Also on another occasion while greatly despondent, I was summoned, at the expense of one of the parties, as a witness in a suit at law, which had been brought against him for an alleged infringment on the right of another patentee. The entire change of scene, with all its many diversions, completely cured me. But for these instances, I might naturally infer that time was the only remedial agent, and that the disease could never be arrested, but must always run its usual course.

Among the many mistakes of my life, I count this to be one of the greatest, that, instead of seeking an entire change as soon as I begin to feel the approach of another attack, I have usually refused to admit the possibility of succumbing to it, and have struggled against it until no power of will was left for further conflict. Those who know how large a portion of my life I have lost by this disease will not be surprised at my unwillingness to quit my work, when to give it up often meant to forego opportunities never to be recalled. Besides all this, I have usually been so straitened for means that it has been very difficult for me to give up my necessary avocations for change of scene.

With thankfulness to God I can truly say that few men have had better friends, and that there has never been a time when I might not have secured means for travel and change of occupation simply by applying to them. But I have received so many favors, often most unexpected and entirely unsolicited, that it is only with extreme reluctance that I have been able to ask assistance of even my most intimate friends and relations. It may well be that some of them will be pained to know that I did not do so, when a little timely aid might have preserved me from long periods of suffering and inactivity. For the many favors I have received from bee-keepers at home and abroad, and from personal friends and relations, I hereby tender my most heartfelt thanks.

No doubt some of my readers will blame me for spending so much time, when under the power of melancholy, in playing chess, even though I tempted nobody else to waste any time upon it. But I most devoutly believe, that, in fighting such a malady, the end fully justifies all means which are not in themselves immoral. It would be well, if it were plainly understood and more fully realized, that, by dwelling too long upon painful subjects, we may at last lose mental control and become absolutely insane. There is no doubt that many who have strong hereditary tendencies that way may, by wise foresight and strong effort, counteract them. The following true story will make more emphatic the above remarks:

About 50 years ago the Rev. Dr. Walker, who was pastor of the Congregational Church in Brattleboro, Vermont, exchanged pulpits with me. On Saturday evening his wife spoke of the singular state of mind into which a well-known minister had fallen. He had been a very acceptable pastor, and had declined, but a short time before, an invitation from an institution of learning, to solicit funds for them. As they still urged him to accept, he called a council of the neighboring ministers, who advised him not to accept the agency; whereupon (such often is human nature) he rejected their advice. From the beginning of his work, his health, which before had been unusually good, began to fail. He became discouraged and morbid; and in conversation with Mrs. Walker he contended that his afflictions were even greater than those of Job. He was reminded by her of a Christian brother known to them both, who, after an absence from home of a few days, found, on his return, his beloved wife dead, and her dead infant lying in her arms. Even such an overwhelming calamity he thought was more bearable than those which had befallen him! At this point in her narrative I became too much excited to sit still. Rising to my feet I exclaimed, "Oh that I could see this unhappy brother, and warn him of the fate which, if he persists in cherishing these delusions, may soon overtake him! He is on the very verge of insanity, if not already insane." After the sermon next morning, Mrs. Rockwell, the wife of the superintendent of the insane-asylum of that place, said to us, "Do you know that Mr. ——" (the very brother we had been talking about) "was brought to our institution last night, quite insane?"

I once related this circumstance to a family circle, entirely unconscious that it could have any personal application. To my surprise, the father of the family privately said to me, with deep emotion, that nothing could have been told better adapted to influence for good one of his own children.

Oh how often does some bereaved soul cry out in anguish, "I do well to give myself up to the indulgence of grief. I have no heart for any thing but lamentations for the loved ones who have been buried out of my sight"! No! poor afflicted soul, you do not do well when you neglect any positive duty. Beware lest what you call "the luxury of grief" may be carried so far as to become rebellious murmurings against the divine will.

I can not here forbear giving a short extract from Walter Scott's Antiquary. An old fisherman had lost his son in a storm at sea. His landlord makes him a visit of condolence.

"When he came in front of the fisherman's hut he observed a man working intently, as if to repair a shattered boat that lay upon the beach; and going up to him he said, in a tone of sympathy, 'I am glad, Saunders, that you feel yourself able to make this exertion.' 'And what would ye have me do,' answered the fisherman, 'unless I wanted to see four children starve because one is drowned? It is weel with you gentles, that can sit in the house with hankerchers at your eyes when ye lose a friend; but the like of us maun to our work again, if our hearts were beating as hard as my hammer. . . . . She maun be mended for the mornin' tide—that's a thing of necessity." Let us thank God for these "things of necessity."

Many of my experiences when under the attack of melancholia resemble very closely those of the poet Cowper. He had long spells of despondency, when his pen was entirely idle, and no persuasions of his most intimate friends could induce him to resume employments in which he once took so much delight. After he had abandoned, apparently for ever, the revision of his translation of Homer's Iliad, a relative one day placed on his writing-desk the manuscript at the place where he had left off, together with his books of reference. It was with great delight that he perceived that it attracted the attention of the afflicted poet, and that he began to resume the work of revision, so long suspended.

This reminds me of an incident in my own experience. The first revision of my work, "The Hive and Honey-bee," had been about one-third completed, when the return of my disease compelled me to lay it aside for nearly a year, and nothing could induce me to resume it. My wife and mother had been for some time noticing that the violence of the attack seemed to be wearing away, and were daily hoping for some more decided signs of improvement. My mother, in joyful excitement, said to my wife one day, "Oh! our dear one will soon be well again, for I saw him in his study, with his pen in his hand." They had both learned, from long experience, how invariably, in my case, were *the cramp mental and the cramp digital* associated together.

How often has Cowper's sad history awakened our deepest sympathy! and to think that he never recovered from his last attack, but passed away under the terrible delusion that he was a hopeless outcast from all God's mercies! Let me give some of its mournful stanzas from the last original piece Cowper ever composed:

THE CAST-AWAY.

Obscurest night involved the sky!
  Th' Atlantic billows roared,
When such a destined wretch as I,
  Washed headlong from on board,
Of friends, of hope, of all bereft,
His floating home for ever left.

He long survives who lives an hour
  In ocean, self-upheld;
And so long he, with unspent power,
  His destiny repelled;
And ever, as the minutes flew,
Entreated help, or cried, "Adieu!"

No poet wept him; but the page
  Of narrative sincere,
That tells his name, his worth, his age,
  Is wet with Anson's tear.
And tears by bards or heroes shed,
Alike immortalize the dead.

I therefore purpose not, nor dream,
  Descanting on his fate,
To give the melancholy theme
  A more enduring date;
But misery still delights to trace
Its semblance in another's case.

No voice divine the storm allayed,
  No light propitious shone;
When, snatched from all effectual aid,
  We perished, each alone;
But I beneath a rougher sea,
And whelmed in deeper gulfs than he.

Such a close to his sorrowful life is verily one of the inscrutable mysteries of Providence. God's judgments are indeed a great deep; and when, to human sight, only clouds and darkness are round about him, we are sure that justice as well as judgment is the everlasting foundation of his throne, and that what we know not now we shall know hereafter.

Blessed be the teachings of that Book which enables us to follow the flight of such a soul as that of Cowper's from all the fetters and limitations of diseased flesh and sense to the presence of Him who brought life and immortality to light!

"Through life's vapors dimly seeing,
  Who but longs for day to break?
Oh this mystery of being!
  When, oh when! shall we awake?
Oh the hour when this material
  Shall have vanished like a cloud—
When, amid the wide ethereal,
  All th' invisible shall crowd,
And the naked soul, surrounded
  With realities unknown,
Triumph in the view unbounded,
  Feel herself with God alone!
In that sudden, strange transition,
  By what new and finer sense
Shall she grasp the mighty vision,
  And receive its influence?
Angels guard the new immortal
  Through the wonder-teeming space,
To the everlasting portal,
  To the spirit's resting-place.
Can I trust a fellow-being?
  Can I trust an angel's care?
Oh thou merciful All-seeing,
  Beam around my spirit there!
Jesus! blessed Mediator,
  Thou the airy path hast trod!
Thou the Judge, the Consummator,
  Shepherd of the fold of God!
Blessed fold! no foe can enter,
  And no friend departeth thence;
Jesus is their Sun and Center;
  And their Guide, Omnipotence.
Blessed! for the Lamb shall feed them,
  All their tears shall wipe away—
To the living waters lead them,
  Till fruition's perfect day.
Lo, it comes! that day of wonder;
  Louder chorals shake the skies;
Hades' gates are burst asunder—
  See the new-clothed myriads rise!
Thought, repress thy vain endeavor;
  Here must reason prostrate fall;
Oh th' ineffable for ever!
  Oh th' eternal All in all!"

JOSIAH CONDER.

Dayton, O., July 14. L. L. LANGSTROTH.

ANOTHER BEE-KEEPERS' UNION.

A SCHEME TO PROSECUTE ADULTERATORS, AND TO URGE THE PASSAGE OF PURE-FOOD LAWS.

I would urge all honest bee-keepers who meet in Washington next fall, to organize another bee-keepers' union for the express purpose of fighting the adulteration of honey. I believe such a union would soon have ten times the strength of our present one, because we are all interested in this matter, except a few dishonest ones, and we will soon make it interesting for them. I have known for several years that a large proportion of the extracted honey sold in eastern cities was adulterated. This is why our dark honey sells for nearly as much as white—it will stand more glucose; and this is why the price does not go up in a poor year. I am very glad to hear H. W. Wiley say, "There is no variation in genuine honey, which would make it similar to corn-starch glucose." And I sincerely hope he will not be obliged to take it back; for if that is true, we can easily trace the honey back to the adulterator, and then place a detective to watch until he gets proof that will convict the guilty parties, if the evidence of the chemist is not sufficient; but we must have a union to furnish funds, and a strict law against adulteration. If I go into a store here and ask for maple syrup, the storekeeper asks, "Which do you want—Vermont or Ohio?"

"What is the price?"

"Vermont is 25 cts. per quart, and Ohio 35."

Now, what do you suppose makes this difference? Is it the soil, the kind of trees, or the law? We know it is the Ohio law, and take the 35-cent can every time. I say, give us laws that will increase the price of our honey, and a union to see that they are enforced. We do not make enough honey, even in California, to compete with adulterators, and enjoy the fun; and I can not see how any honest man can be opposed to laws that would remove this competition. J. F. MCINTYRE.

Fillmore, Cal., July 26.

[Mr. McIntyre is on the right track, and his scheme should certainly receive hearty encouragement. Whether it would be best to organize a new union having new functions we can not say. It occurs to us that it *might* be more feasible to modify the constitution of the existing Bee-keepers' Union so as to cover the objects above set forth. We have no doubt that every member of that organization would vote to have this change made, providing that General-manager Newman should sanction it. It may not be best, however, to interfere with or enlarge the scope of an organization that has already done great good by the precedents in law which it has established in the interest of the bee-keeper. While we do not believe that adulteration of our product has been carried on extensively, we can not deny, in the face of some facts which have been brought to light, that it has been done to some extent, and we therefore need—yes, must have—an organization whose business it shall be to ferret out the adulterators and bring them to justice. Honey will probably be a little scarce this year, and the temptation to mix in glucose will be great. A union such as Mr. McIntyre outlines, with competent, conscientious officers, it seems to us ought to secure easily a membership of not less than 1000. With annual fees of $1.00 from each member, some telling and effective work could be done. Let's hear from you, brother bee-keepers.]

STRAWS FROM OHIO.

THIS 'ERE SEASON, ETC.

Ah me! it makes a sinner wondrous blue
To see the bees with nothing else to do
Than wonder how they came to be a bee,
And if they'll ever live to see
Another such a season through
As this 'ere present, 1892.

I began taking off boxes to-day, but they were empty.

It's just fun to mind the bees this year—no swarms nor honey to bother.

I think Rambler had better come home. We had better luck when he didn't ramble so much.

You can't winter bees on the 40th parallel without honey or sugar, or something like that; don't try it.

I will experiment with "sealed covers" next winter, if I can find a sealer. Any one having one, let me know.

Dr. Miller says, "Look out for those empty combs." But, Dr. M., how did you know I had any?

Now, just as I had started into the beeswax business, they've gone and put the price down—too bad.

Who said, "Let's quit"? Don't say it again, or I'll do it; for about all I'll have left by fall will be the hives and wire fence.

Manum's getting into the fruit business, and Root into the patent-process garden business until he can't sleep late in the morning; wonder if that has any thing to do with these poor seasons.

The McKinley bill lowered the price of sugar, and honey too, and he's the man I "holler fer." Well, I don't care. I have no honey to sell, anyhow; but my tariff-reform friends rub it in so hard I don't like it pretty good.

Manum says bees haven't paid *him*, and I know they haven't paid me; but it always did take me so long to find out any thing. No charge for this; it's free, like Root's dovetailed fixin's; no patent.

I took off some upper stories yesterday, and the bees hadn't built a sign of any brace-combs, nor any other, either. This kind of season is the best preventive I know of, and I haven't Hoffman frames either.

I try to be merry, but 'tis no use;
My case is wondrous hard;
For I feel just as silly as a farmyard goose
When I go out into the bee-yard.

Springfield, O., July 8. FRANK McGLADE.

E. FRANCE'S REPORT FOR 1892.

NEARLY 500 COLONIES, AND LITTLE OR NO HONEY.

We went into the winter of 1891 with about 600 colonies. I say *about*, for I don't know exactly. We always count our bees in the spring, after the season is far enough advanced so we are sure that there will not be any more losses. We pay rent for our locations, 25 cts. for each colony, spring count, so we know and keep record of each yard, spring count. We seldom count up in fall. In the spring of 1891 we had 580 colonies. We made but very little increase last year. We lost none during the winter except a few queenless stocks. In fact, that is the cause of most of our losses. Some queens get old and die at times when they can not be raised; then, of course, the colony is gone up. Our bees came through the last winter in good order. Up to the first of May we never had them look better. They were strong and healthy; plenty of drones hatched and flying the last days of April. Then it began to rain, and it rained about all the time, or nearly every day, until the second day of July; since then we have not had any too much rain. I heard one man say that it rained 40 days in May and 50 in June. Of course, he was a little off; but if he had said that it rained that many times during those two months, I don't think he would have been far out of the way. It not only rained, but it was cold, so if a bee did go out between showers its chances were that it never got home again; at any rate, the bees were stronger the middle of May than they were the first of July. They had to live and breed up on what they had left of their winter's stores. Thanks to France's motto (that a great deal too much honey for winter stores is just enough). That was all that saved the bees this time—not the motto, but the honey that was in the hive last fall. It lasted them until July. But many of them were in a starving condition at that time.

July came in with very little clover in blossom; but a few days of fair weather improved the clover. Now there is an abundance of clover, but there is not much honey in it. Basswood is now in full blossom, but there is not more than a fourth of the trees that bloom this year, and the bees don't work much on them. They are getting a little honey, but it comes in slowly, and is very thin. We have 560 colonies, almost all very strong now; but at this date, July 24, only one swarm, and not a pound of surplus honey. From the present outlook, if the bees get their winter supply it is all they will do. We are very anxious to save the bees until next year, as I believe next year will be the best honey year that we ever had, for next year will be the regular basswood year, and there are millions of young white clover that came up this wet season. We will try to save the bees, and live in hopes. This year we got every thing ready for a big crop—did every thing we could in advance. The first of May I saw no reason for a failure. But such is life. I used to think there was nothing in luck—that a man made his own luck, and to a great extent I think so yet; but in such years as this the best must fall behind, or, in other words, will fail to secure a crop of honey. It is these bad years that try a man's ability to handle large lots of bees. One has to look sharp if he holds his own and keeps his stock up. It will take about 18,000 lbs. of honey to winter our bees. I am in hopes they will gather it; if not, they will have to be fed sugar to make it up. I should guess they have about half enough now to winter them. I am glad of so much; and if they winter themselves without the expense of sugar we shall be very glad. There is one thing to make us glad. We have all the supplies that will be wanted until we do get a crop of honey. There will be but little expense next year—only to harvest the crop, if we have it.

As for the experiments that I was thinking of for this year, I am not doing any thing about it. So far I have had no swarms to work with. It is a bad year to make experiments; every thing is out of its natural course, and I could not prove any thing if I tried to.

It is now July 30. The clover and basswood are both done, and the bees have about half enough to winter them—poor prospects for them to get any more. Some two or three yards, however, have some buckwheat near them. There are bushels of bees lying out this hot weather. The honey came in so slowly that brood-rearing used the most of it up as it was gathered, and there are yet large quantities of brood in the combs. We can not do any thing with them. If we open a hive, the robbers are on hand in a moment. In fact, take a smoker and blow the smoke over the grass and there will be a large number of bees hovering over the grass and crawling over it for an hour afterward; and just blow a few whiffs of smoke in at the entrance of a hive, and the robbers will be crowding in in a minute; in fact, I never saw the robbers so bad before. But so far there is no trouble if we let the bees alone. They are not cross, and we can go all about the yards, stand around, sit down on a hive, and they don't object.

So much for the bees and honey crop. How they come out at the end of the season I will report later. E. FRANCE.

Platteville, Wis.

CAUSE OF SWARMING.

DR. MILLER AGAIN HAS TO SAY, "I DON'T KNOW."

Of all the will-o'-the-wisps I know about, the prevention of swarming is one of the worst. Some plausible theory entices you, the thing seems just within reach; but, alas! when the theory is put to the test you find the object of your search just as far off as ever. I think a great majority of bee-keepers would esteem it a great gain if a non-swarming race of bees should be found, or if some one should discover a plan not difficult of application, by which we could make sure of a strong colony of bees going through the entire season storing comb honey without ever attempting to swarm.

It is true, that some say it is best to let each colony swarm once; but those same persons think it would be a gain if the bees should not *desire* to swarm that once. But believing that there is no way yet known to thwart that desire, they think it best to yield to the inevitable.

As a general rule, the first thing in attempting to remedy or prevent a disease is to find out the cause. So it is a matter of prime interest to discover what it is that causes swarming. And so important is this that it may be worth while to indulge in a great deal of speculating, a great deal of experimenting, in the hope that some one may be fortunate enough to make the happy discovery.

I think it was a few years ago that Hasty, in reply to a question, said he thought the bees wanted to swarm because the glands which secreted the food for the larvæ became surcharged. At the time it did not seem very clear to me how there could be any close connection between the two; but of late a writer in one of the German bee-journals has somewhat carefully elaborated the idea, making it seem quite plausible. Whether he had got the idea from Hasty, or started out on a fresh track for himself, I do not know.

His reasoning was something like this: Starting out in the spring, the queen is capable of laying more eggs than the workers can care for. An increase of bees is followed by an increase of laying, and for some time the increase of each goes hand in hand. Finally the queen reaches her limit in laying at a time when there are thousands of young bees constantly coming on, and thus they are thrown out of balance. The queen becomes stationary in her work, if, indeed, she does not fall off, while the increase of nurse-bees is greater than ever. The food prepared by the vast throng can not all be utilized. The congested organs of the nurses cause a feverish condition, and swarming seems the only relief. Incidentally, it occurs that some relief comes from building comb, from feeding a larger number of drones, but especially from depositing large quantities of the elaborated food in the form of royal jelly in a number of queen-cells. But with all this there is still a large surplus of food elaborated with no young bees to consume it, and then comes swarming.

I was curious to know if that genius, Hasty, had any additional light on the subject, and wrote asking him about it, as to whether he made up the theory all out of his own head, or where he got it. He replied that, so far as he remembered, he had not met with the theory elsewhere, and then saved me the trouble of putting the theory to the test by saying: "The next season I tried to utilize the theory to prevent second swarms by keeping the colony supplied with young brood. Probably a supply of young brood does *tend that way* a little, but it does not tend that way hard enough to stop the fever when once begun. The fatal defect is, that in furnishing young brood you also have to furnish them with the means of keeping up the row indefinitely, *and they'll do it.*"

A writer in a late number of the *A. B. J.* declares in a very positive manner that the one sole cause of swarming is the playing-out of the queen, and that in all cases the queen is soon superseded after swarming. I think very few bee-keepers of experience would accept this theory after studying over it a very little. For one thing, I think facts will hardly carry out the assertion that a queen that has gone out with a swarm is promptly superseded. Does not a laying queen that heads a swarm often lead out a swarm the next season? Another proof against it I find in looking over my record-book of last year. In that I find plenty of instances in which queen-cells with eggs in them were destroyed and the bees gave up, either for a time or entirely, the idea of swarming. To a less extent the same was true when grubs in cells or sealed cells were destroyed. Now, if the queen was too old, she kept getting older, making the bees still more anxious to swarm, if the theory be true.

But the Hasty theory is not so readily refuted. Hasty's test was not a conclusive one, if he is right that, with the cure, he furnished also an aggravation of the disease. Still, I haven't as much faith in it as I had. If the supply of honey ceases, either because the flow in the fields stops or because the hive has been removed so as to lose its field force, the bees give up all idea of swarming, although the nurse-bees are just as much surcharged as ever. It might be answered, however, that, when the flow ceases, the nurses do not eat so much, and that stops the trouble. But with abundant stores in the hive, may the nurses not eat just as much as if it were coming in regularly?

But here's an objection that I can't so readily get over. Dadant & Son, with their large hives, have almost no swarming. Now, is there not the same chance there for the nurse-bees to get out of balance with the larvæ to be fed as there is in smaller hives?

If any brother knows, I hope he will please rise and answer the question, just this one question, "*What is the cause of swarming?*"

Marengo, Ill., July 23. C. C. MILLER.

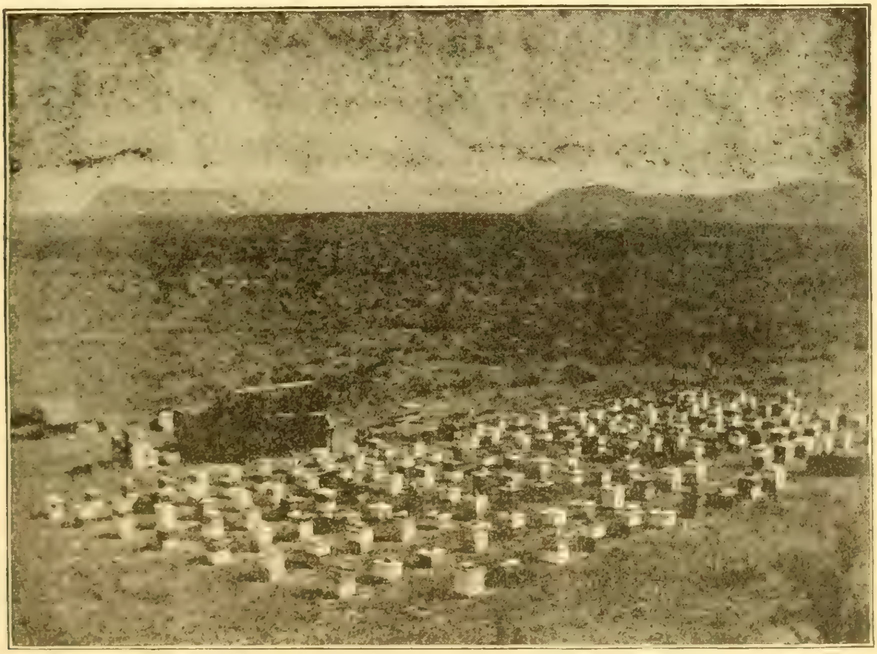
RAMBLE NO. 65.

A PROVIDENCE; RAMBLER AT HOME.

There are times in our lives when it seems that some hidden influence is guiding our footsteps; and it is so plainly felt, and the results so clearly defined for our good, that it has been variously termed as "chance," or to the power of a spirit, or to Providence. The last term seems to be the broadest, and to include all of the rest; and though the Rambler may be unworthy of it, he feels many times the guidance of a Providence, and the promptings of a conscience in the small affairs of life, and especially so in this search for an apiary, as the sequel will show.

When I had strayed beyond the bounds of Riverside in my search for an apiary, my previously mentioned premonition waned; and when I arrived in Redlands, nearly twenty miles away, though not extinct, it was very dim. Redlands is the headquarters of the honey-producing firm of Wheeler & Hunt, who own many apiaries, and to whom I had been directed, with the assurance that they were generous and square-dealing men, all of which I have since found to be true.

Mr. Hunt is the field-marshal of the honey-gathering hosts, and Mr. Wheeler superintends the Rose gold-mine up in the mountains beyond the Cajon Pass, in which he has a large amount of capital invested; so if the honey-mine is a failure, the gold-mine makes a good backing to the business. I found Mr. Hunt and one of his helpers, Mr. Curl, who, by the way, was formerly a workman at the "Home of the Honey-bees," at work in his shop, surrounded by a wilderness of hives, section-cases, and the hundred and one traps found in all large apiaries. After the usual salutations, and the comparing of notes on the delightful weather, and as to how we all were impressed with the beauties and advantages of California, I seated myself on the end of an up-turned bee-hive and proceeded to business by asking him whether, among his numerous apiaries, he had one for sale or to rent that was worked exclusively for extracted honey.



RIVERSIDE APIARY, OPERATED BY RAMBLER.

"No," said he; "we hire men by the month, and have better results that way than to rent. If we rent an apiary of 200 swarms, and it is a good season, there is a chance for the person working the apiary to make a thousand dollars. The average yield in a good season is not less than 200 lbs. per colony, while we sometimes get three and four hundred from an occasional colony; and we have never had a season that has failed to give us enough to pay our help and have some to spare."

This strain of talk was very encouraging in one sense, and discouraging in another; and, as the lawyers say, we rested the case.

That night Mr. H. must have enjoyed very pleasant dreams; for in the morning he relented from his previous position, and said that their most remote apiary, near Riverside, he would rent providing Mr. Wheeler had not already rented it; but Mr. W. was at the gold-mine, and it would take a week to hear from him. How those few words did elevate my hopes, only to be jounced down again! I resolved to hold on to this hope, but at the same time pursue a further search. Train time in an hour; five minutes' walk; umbrella, grip, and hat near at hand. Just then Mr. Gunther, a bee-keeper of Redlands, a very pleasant young gentleman, and locally noted for his musical talents, came in, and the conversation flowed so pleasantly that the hour passed, and the train also. But this is a very enterprising country. There are two railroads, and trains run often; but before the next one arrived, something happened. Mr. Wheeler, the much-unexpected and much-wanted, arrived, and in a few minutes I learned that I could have the Riverside apiary if it suited me. Of course, I knew it would suit, or, in other words, I would *make* it do so.

With the burden of doubt and uncertainty rolled away, it was with a felicitous feeling that I started out with the stalwart Mr. Curl the next forenoon for a ride of a dozen miles to inspect the apiary. My escort was also in a felicitous state of mind, and beguiled the journey with stories and bee-talk, and calling attention to things of interest by the way. Within two miles of the apiary we passed through an old Spanish settlement, and these people were to be my most numerous neighbors. Their adobe houses and wide verandas had an air of comfort; and from the number of urchins around, the settlement seemed to be very thrifty. Here was formerly an adobe mission; but the walls have crumbled to dust, and all that remains to mark the site and to remind one that people were called here to worship is an old Mexican copper bell. Some kind hands rescued it from the ruins, and it is suspended from the broken branch of a dead cottonwood-tree, mute and tongueless. To the lover of the chiming bells this one is in a condition to excite sentimental and retrospective thoughts.

I found the apiary of 153 colonies located upon the northeastern point of the Jurupa range of hills, and in front of it was the broad Cucamonga Valley, bounded in the distance by the snow-capped San Bernardino mountains. It was a mile from any occupied dwelling; and as far as loneliness is concerned it would suit almost any hermit. Water, that necessary article for man, beast, bee, or vegetation, was a mile away; and what was used had to be carried by horse or man power. The ground all around the apiary was littered with tin cans, packing-cases, and various utensils. A very good honey-house, 12x8 feet, a six-ton honey-tank, and a sun wax-extractor, were on the grounds. The wax-extractors used in California are no such small things as we find in the East. The glass surface is usually 2½x5 feet, and sometimes much larger, and they are capable of reducing to wax all the combs in an apiary. It was something of a novelty to examine the colonies in mid-winter, and find them carrying in pollen and rearing brood, and in as flourishing a condition as we usually find them in the East in May. Remembering some of my disastrous wintering experiences I exclaimed to Mr. Curl:

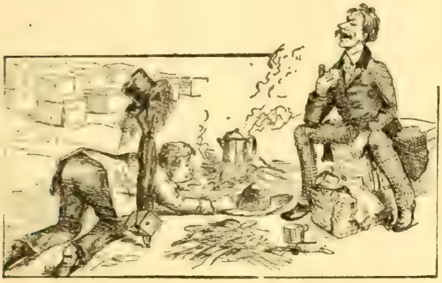
"What a terror in the shape of winter the California bee-keeper does escape!"

"Yes," said he; "the only terror here is now

THE CABIN WHERE RAMBLER KEEPS BACHELOR'S HALL.

and then a short honey season and starvation; and there is no excuse for even that if proper care is taken."

The mention of starvation had a wonderful effect upon my guide; and with a rapid stride he started for our hash-basket. It was dinner-time; and his favorite coffee-pot, which, like the Irishman's pipe, the blacker it was the better the contents, was soon simmering over a pile of dry greasewood twigs. My friend looked so poetical starting the fire that my pencil caught him. The sketch is wondrously like starting a western town. The next stage would be a stove, a rude table, and a blanket to sleep on; then a cabin would grow around the table and the stove, and by and by a village.



HOW RAMBLER'S COMPANION MAKES COFFEE.

The land whereon we ate our dinner is owned by the Semi-tropical Land and Water Co.; and afterward, in looking at their maps, I found we were anticipated in our starting a town, for the apiary was appropriately located at the end of Linden Avenue. A great amount of greasewood and other brush will, however, have to be grubbed out before the avenue materializes.

My Riverside premonition being fulfilled, I made that place my headquarters and went out daily and put the apiary in better shape than when I first saw it. A great many out-apiaries in this country are run on the slam-bang principle. Having many to attend to, the work is done up in a hurry, and some things are necessarily slighted. Then, again, it is only occasionally that a hired man understands his work thoroughly and does it faithfully. Such as do this are in demand at all times.

The greatest evil I found in this apiary was the waste of bees from drowning in their own sweets. Several 60-lb. cans, half full of honey, were left with the screw cap off, and, of course, the can was well filled with dead bees. An unknown amount of honey was left in the tank; an insecure cover let the bees in, and over three bushels of the dead were thrown out. The blame for loose covers, etc., might be laid to meddlesome parties who are prone to examine such things and carelessly leave them open. The Rambler was occupied many days in cleaning up and in building a lean-to and workshop by the side of the extracting-house. When completed, and a spring bed, chair, table, oil-stove, etc., added, I felt much at home, and have enjoyed living in it many days at a time; but Sunday usually found me in my other home in Riverside among the comforts of civilization. Like Henry Thoreau, the Concord philosopher who retired to a lone cabin in the woods to study the effects of isolation from his kind, I have become quite well acquainted with animal life. The cotton-tailed rabbit, though much hunted, is quite numerous and quite domestic when unmolested. A half-dozen of them will come within 20 feet of my cabin door at evening and gnaw at a pile of refuse thrown from the wax-extractor, showing their appreciation of the products of the hive. The gray squirrel also has a taste for the same pile, and gambols around and on the roof of my cabin. The lark and the mockingbird, especially the latter, fill the air with the richest and most varied music; and at evening will drop down in front of the door for any stray crumbs I may throw out. Occasionally in the night a band of coyotes have added their discordant notes by giving a serenade from the rocks above. The dandy, however, among my numerous companions, is the festive skunk. I have one special pet, with a beautifully mottled back, that comes from his den under the wax-extractor just as the evening shadows fall, and, raising his hind feet and tail high in the air, will waltz back and forth within 20 feet of me, and, with his gracefully waving tail, says silently, but plainly, "Come if you dare." But he does it, I suppose, for the edification and amusement of the lonely RAMBLER.

MILKWEED.

WHAT SPECIES DOES AND DOES NOT DISABLE BEES.

Mention is made in the A B C of the mischievous properties of *Asclepias cornuti* in gumming the feet of bees and thereby disabling them; and the plant is, therefore, rightly condemned. The remarks justly apply to the variety in question; but a distinction should be made in favor of *Asclepias tuberosa*, which is one of the most valuable honey-plants of this vicinity, from the first to the middle of July. It is not chargeable with the mentioned objection of the other varieties, and is a rich honey-plant, furnishing a good quality of honey. It grows on sterile soil, and flourishes under conditions that would be fatal to most other honey-plants. Bee-men should not ignorantly cut it down. If they are not botanists they may know it from the injurious varieties of milkweed by its rich orange or scarlet colored flowers, which are really ornamental, and from the fact that, when the leaves or plants are cut or broken they show no milk exuding from the wound.

DISTURBING BEES TO MAKE THEM BUILD COMB.

You note on page 176, A B C, that disturbing certain swarms of bees resulted in their gorging themselves with honey, which had the effect to start them to building comb. Will, then, alarming bees frequently — as, for instance, pounding on their hive, cause them to build more comb than they otherwise would in case you should wish them to build comb? Would it serve as a reliable method? Sometimes bees seem to be averse to building comb, even on fresh foundation, when it is really needed.

DO BEES TREAT EACH OTHER FOR INDISPOSITION?

From my observation I believe that bees treat one another at times for indisposition. You will sometimes see a bee, and often as many as three at once, going all over another and pushing and pressing it with their fore feet, as if they were administering a kind of massage treatment. It, in the meantime, will hold quiet and take the dose in best good nature. They are not cleaning it, but appear to be rubbing out its rheumatic pains. It reminds me sometimes of a barber shampooing a customer. No doubt many have observed the fact.

HOW YOUNG QUEENS ARE LOST BY GOING INTO THE WRONG ENTRANCE.

Young queens are undoubtedly sometimes lost in returning from their wedding-flight by entering the wrong hive. I saw one of mine do this one afternoon. It caused a great commotion in the colony, and I thought by their pouring out they would certainly swarm. The next morning I found an adjoining hive without a queen, and, in looking into the other hive, I found two queens. As I did not wish to transfer one of them just then, I placed the combs they were on on opposite sides of the hive, and ventured to leave them both in until the next day. When I went to hunt them next morning I found them both on the same side of a comb, and within four inches of each other. They would probably soon have come to a conflict. When I placed one of these in the queenless hive, to my great alarm the bees immediately balled her in a most furious manner. Having some thin sugar syrup near I dropped this cautiously on the mass of bees, and they soon turned their attention to cleaning themselves up, and gradually released the queen. The next morning she was all right and laying. I have since used the same remedy in bad cases of balling, and always with entire success.

Elkhart, Ind., July 26. C. H. Murray.

[The case to which you refer under "Hybrids" was intended to show that dark hybrids, when the hive was opened, and sufficient smoke was given them to subdue, would sometimes uncap the honey. We doubt whether it would work generally in inducing them to build comb after uncapping their honey, particularly after the honey-flow—certainly not with gentle bees or Italians.

Bees will sometimes pick over their fellows, as you describe. Bees slightly affected with paralysis are often subjected to this treatment from the other healthy bees. In our back volumes this sort of picking was attributed at the time to a mistake of the bees in getting into the wrong entrance. The strange bees do not act like robbers, and hence are not so summarily dealt with as in the case of actual robbing.

Young queens very often, in returning from their mating-tour, get into the wrong entrance.]

THE "CURRANT-WORMS."

BEE-KILLING BUGS, ETC.

Mr. Root:—You were right regarding currant-worms, and Mr. J. E. Crane was in error. The insects spend the winter in the earth, just beneath the leaves, at the base of the bushes, in a thick paperlike cocoon. Often, before the leaves are all unrolled from the buds, the yellow saw-flies come forth and lay their 70 or 80 white eggs along the veins on the under side of the young leaves. These eggs will be seen in early spring on the lower leaves, and look like strings of beads. Soon the little larvæ, the so called "worms," hatch out and commence to eat, and perforate the leaves so that they look sievelike. As they grow, like all insect larvæ they shed their skins, and soon they are green, dotted with black. In three or four weeks they are full grown, and go into the ground, or just beneath the old leaves, and spin their cocoons, in which they pupate. In a week or two another brood of flies comes forth, and the same round is repeated, except that these pass the entire winter as pupæ. As Mr. Crane says, white hellebore—one ounce to a pailful of water—will kill them, and should be put on as soon as the small holes show that the insects are at work, before the leaves are fully out. I find a very dilute mixture of London purple or Paris green—half a teaspoonful to two gallons of water—will kill them quickly. It is much more effective than the hellebore; and as every gardener or orchardist will have it at hand it will often be more convenient than the hellebore. No one need fear harm from the poison. So little is used, and this at so early a date, not a trace will be on the currants when ready for picking.

PARIS GREEN FOR POTATO-BEETLES.

Mr. J. E. Walker (see Gleanings for July 1) is quite wrong in suggesting that you can not poison mature potato-beetles with London purple and Paris green. I always apply it on the potatoes as soon as they are up, and always kill the mature beetles, and so prevent egg-laying. This is a sure remedy, and saves much work. I apply it to the young vines by sprinkling it on dry, mixed with plaster, 1 lb. to 75 of the plaster. Later I spray the potato-vines, when they get large, using 1 lb. of poison to 200 gallons of water. Let all remember Prof. Gillett's discovery, that a little fresh lime, thoroughly slacked, mixed with the London purple and water, will prevent all burning of the foliage. We may use two or three pounds to one of London purple. This is a very important discovery.

THE WHITE HAIRY COW-KILLER.

There is a large, hairy, ant-like, wingless insect, found from Indiana south to the Gulf, that is red, banded with black. It has no wings, and can sting with terrible effect. I suppose that is why it is called cow-killer. It sometimes kills bees. I have illustrated this insect in my Manual, p. 427. I have just received another species of cow-killer, much resembling the preceding in form and size, but covered above with long white hair, and beneath with very black hair. This comes from M. H. Mendelson, Ventura, California. The name of the insect is *Sphæro opthalmus sackenii.* He says it is common in orchards and timbered lands. Mr. M. has discovered that this species, like our eastern cow-killer, can use its long curved sting with tremendous effect. Mr. M. wishes to know through Gleanings something of its history. I presume it is predaceous, and lives on other insects. It would be interesting to know if it kills bees. I presume the male would be smaller, and would have wings. The genus *Sphæro opthalmus* consists of many species, of which several live in California.

Mr. Theodore Lohf sends me three insects from Brighton, Colorado, for which he wishes a brief description in Gleanings. The first one, he says, is very voracious and very numerous. It walks into the hive, seizes a bee, and walks off with it. Mr. L. thinks the bee is killed utterly at once. I find that this bug (for it is a true bug) is known as *Ampiomerus crassipes.* Fab. Its head, thorax, scutellum, thickened base of the wing-covers, and legs, are dull red, or, better, dusky red. The narrow posterior border of the thorax, and thickened portions of the wing-covers, are white, while the membraneous portion of the wing-covers, and the under side of the thorax, are black. The under side of the abdomen is transversely striped with black and white. The insect is about the size and form of the common black squash-bug. The record of this insect's habits is important, and so I have given quite a full description. I think it may well be called the Colorado bee-killing bug.

The second insect I would call the zebra locust. It is beautifully speckled with black, white, and red. The name is *Dactylotum pictum.* This insect is not yet full grown. It is three-fourths of an inch long, and, when full grown, will be twice as large.

The third one is a long slim green grasshopper, with spearlike horns, or antennæ. The name is *Merops Wyomingensis*. It is remarkable for its slim form, pointed front, and heavy spearlike horns. The two last feed on plants. I should like several more of all of these.

LADY-BIRD BEETLES.

These beautiful rounded beetles are known, admired, and not dreaded and abhorred, by nearly every one. The eggs are laid on the leaves of plants that are infested with plant-lice or some other insects. The elongated spinous or hairy larvæ are active, and so soberly garbed that they are rarely seen except when we shake the branches of trees and plants over a sheet or umbrella, when they fall and are discovered. These larvæ are our good friends, as they feed not alone on plant-lice, but on the eggs of potato-beetles and other injurious species of insects. Last year the plum-trees in many sections were terribly devastated by plant-lice, and were saved from serious injury, and, possibly, total destruction, by a host of these lady-beetle larvæ that came to feast on the lice and save the trees. The beetles are yellow or red, dotted with black, or black dotted with red. They are also our good friends, as Mr. J. E. Walker says in GLEANINGS, July 1, page 515. They feed on the eggs of the potato-beetles. They are ravenous feeders; and as they devour many kinds of our noxious insects they do immense good. They pupate on the twigs, leaves, or sometimes on the fruit of the plum (see Fig. 1) and apple. I inclose figures of the beetle (Fig. 2) and pupa (Fig. 1) of the species that did so much to rid us of the plum plant-lice last summer. It is one of our largest species. As will be seen, both the beetle and pupa are enlarged. The pupa resembles both the larva and the beetle. I have seen these pupæ so thick on a twig that they reminded one of a cluster of currants. This species is "*Anatis 15-punctata*," Oliv. Mr. Walker's interpretation of what he saw was not correct. The beetles lay their yellow eggs on the leaves or twigs, and never care for them more. I presume the beetle was accidentally near a larva, or, possibly, its own pupa-case from which it had escaped. This may not be the correct explanation; but it is the best one that I can give. It certainly was not brooding on its young, for that is not their way of doing things. The beetles lay many eggs.

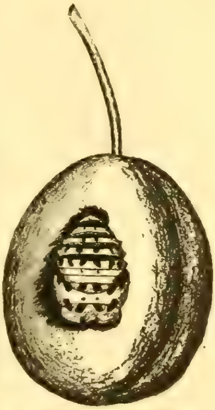


FIG. 1. PUPA OF BEETLE.

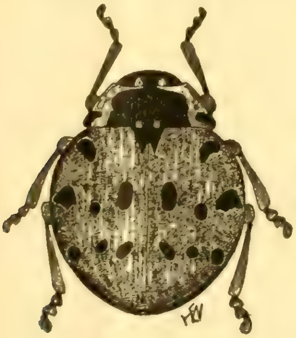


FIG. 2.—LADY BIRD BEETLE.

LIPPIA LANCEOLATA AS A HONEY-PLANT.

I have received a small inconspicuous flower from Mr. F. H. Petts, Warsaw, Mo., which he says is constantly crowded with bees. This proves to be *Lippia lanceolata*, or fog-fruit. It belongs to the same family as the blue and white vervains—*Verbena hastata* and *V. urticifolia*, which I have long observed to be among our best honey-plants. I have no recollection of ever hearing of this lippia as a honey-plant till now; but as it is so closely related to our verbenas we might expect it to possess virtue in this direction. A. J. COOK.

Agricultural College, Mich., July 16.

[Many thanks, friend Cook, for giving us the minutiæ of the habits of the currant-worm. As both you and friend Crane recommend the same treatment, the difference is not material. You speak of Paris green doing no harm when put on so early; but, my dear friend Cook, the currant-worms are trying hard to make a stand against us even now, when our fruit is dead ripe. As the hellebore we get at the drugstore is labeled "Poison," and an antidote is printed on each label, I hesitated somewhat about dusting the powder on the fruit when we were picking it; so I used pyrethrum, which seems to answer equally well, if not better; and this, I am told, is harmless, even if put right on the fruit. My impression was, that friend Walker was making a mistake; but as we have had some potato-bugs that acted quite stubborn and contrary when we tried to poison them, I concluded it was best to let the statement go into print, feeling sure that you or some other good friend would straighten us out where we were wrong. I am very glad to know that the addition of lime prevents Paris green from injuring the foliage. I have for some time objected to poison for potatoes on this account; and, by the way, where our potatoes grew real rank and strong, we have had but little trouble of late years from the potato-beetle. During the past spring, however, when the potatoes were so saturated with wetness that their life was almost drowned out of them, the beetles seemed to think it a fine opportunity to pitch in and eat them up, and therefore we have resorted to poison once more.] A. I. R.

INTRODUCING QUEENS.

EVEN DOOLITTLE BAFFLED.

It would seem that enough has already been written on this subject; but after the experiences of this season I am led to ask, "Is there any mode of safe introduction of queens?" I thought I had mastered the subject, and had settled down contented in the thought that, in the hatching-brood plan, the caged-bees plan as given in my book, and the large wire-cloth cage, to stick into the combs over hatching brood, allowing the queen to stay here with the young bees till she had filled the cells under this cage with eggs, we had something perfect, or so nearly so that no one need lose any queen, when, to my chagrin, I have to acknowledge that I don't know how to introduce a queen successfully *every* time. If this is to be said of one who has been in the business of handling queens almost constantly for fifteen years, is it any wonder that the novice handles and tries to introduce queens "with fear and trembling"?

If not out of place I wish to tell a bit of experience.

The latter part of June, on a Saturday, I took a queen away from a moderately strong colony of peaceable Italian bees, and late that afternoon a choice queen came to me in the mails, quite unexpectedly. I thought, to put the cage wire-cloth side down over this colony, and leave her for safe keeping till Monday morning, was the best thing I could do, as it was now nearly dark. I did not notice that the wire cloth did not go back clear over the candy-hole, which was covered with thick manilla paper; so I ignorantly started to introduce this queen just exactly according to directions accompanying the cages sent out by the editor of GLEANINGS; for when I went to look after the queen on Monday I found that the bees had cut through the paper, when there was just room for one bee to get at the candy at a time at the back end of the wire cloth, and that they had eaten out the candy and liberated the queen. Well, thought I, she will be all right, for this is the common mode of introduction nowadays. Opening the hive I soon came to a ball of hissing bees, and I knew that my choice queen was in peril. I liberated her from from the bees with smoke, and caged her on hatching brood with one of the large, open-mouthed wire-cloth cages. I now left her four days, when I found the cage balled with bees on opening the hive. I now waited two days more, or eight days from the time the queen was taken out, when I took out every frame and shook off the bees and cut the queen-cells, thus leaving the colony hopelessly queenless, save the queen that was in the cage, at which there were still a few bees gnawing. I now had them in the condition in which all authorities said they would take a queen. Two days later I found plenty of eggs in the cells under the cage, and the bees quiet all through the hive and on the cage, while the queen looked as large and plump as any laying queen does. I said, "Now I am all right;" so I took off the cage and set the frame with her on it, walking around quietly in the hive. In an hour I opened the hive, only to find the queen balled again, with two of her legs badly crippled, when I got her released. She was caged again and left till she again laid under the cage. I now took the frame out, removed the cage, and watched her some minutes on the comb, when I set it down on the outside of the hive, took another frame out and stood it up beside the first, so the queen was between them, the same as she would be in the hive. I frequently do this; and, if the queen is not molested, set the two in the hive together so the queen is not frightened, and find it a good thing. In a moment or two I parted the frames, and the queen was all right.

Just then I was called to the house a few moments, when I returned to set the frames in the hive. I thought I would peep in and see if the queen was all right between the two combs, when, to my surprise, and, I might add, disgust, I saw a little ball of bees about the size of a walnut, and my choice queen stung to death in the center. I now take back all I have said, that no queen need be lost if care and perseverance are used with this open-mouthed-cage plan. I said, "Doolittle, you are a dunce; you missed some cell, and they have hatched a young queen;" so, to test the matter, I gave a frame of larvæ to them, when, lo! I was not a "dunce" after all, for I found plenty of queen-cells in progress three days after. The next day a swarm came out, and I thought to hive it right in with this queenless colony, and thus secure a big yield of basswood honey, as basswood was then at its best. I soon had all the bees shaken off the combs from four to five feet from the entrance to the hive, combs put back, excepting the one with queen-cells on it, a full set of sections put on, and the swarm and the bees shaken off their combs, entering their hive together. By the way, this is the proper way to hive a swarm in a hive already having a colony in it, if we wish to prevent having a part or all of the swarm killed. Now, thought I, they have a queen, and are in good shape. The next day they appeared to work as if all was right; but on the early morning of the fourth day after the swarm was hived I chanced by this hive, when I saw a ball of bees at the entrance, and, upon examination, found my clipped queen, which I hived with the swarm, all scraped by the bees till she was hairless, but otherwise unharmed, as she has since proved by giving to another colony.

After noon of this day I thought to try this colony at cell-building by my plan: so at three o'clock I gave them 23 cell-cups, prepared in the usual way. Yesterday I took away 20 nice queen-cells nearly ready to hatch, and left one to see if they would accept a queen hatched in their own hive.*

This story has spun out pretty long; but as it is something different from any thing I have ever experienced before, or ever read about, I thought I might be pardoned for telling it. I have also lost a queen by the caged-bees plan this summer, which heretofore I had considered sure, and one or two losses have been reported. I now, instead of dropping the queen down into the box of bees, after they have been caged three or four hours, as I formerly did, put her in a round wire-cloth cage having a hollow stopper, which is filled with enough Good candy so it will take the bees three or four hours to eat it out. In this way I am successful; but how long it will last I do not know. Giving a queen to frames of hatching brood is safe if the proper temperature is maintained and the hive is made tight; but, alas! many fail here, as many private letters tell me. Who will give us an absolutely safe plan? G. M. DOOLITTLE.

Borodino, N. Y.

[It has been our experience, that there is occasionally some one particular colony that absolutely refuses to accept a queen, no matter what method of introduction we use. It is a rule laid down in our apiaries, not to fuss with them very much, but to give them a cell in a protector, at the same time keeping away all unsealed larvæ. If this fails we give them a very little young larvæ from a choice queen, and allow them to follow their own sweet will in rearing a mother from the start.

We have also observed that, when a queen has been *once* balled, she is more apt to be balled again, even when given to strange bees. There is a sort of odor from the anger of balling bees that still clings to the queen, we think; and whenever she is released again, the bees take the initiative and seem to think that, because the queen has been balled once, she is therefore undesirable.

You misunderstand our method of introducing queens, or, at least, do not correctly state it above. We formerly used a mailing-cage, the wire cloth of which did not quite cover the candy-hole; but we found this faulty because the bees would gnaw in to the queen too soon. We now use a cage made on the same principle, only it takes the bees from 48 to 60 hours to get to the queen; and even then it takes her a considerable length of time to discover how to get out. A quarter-inch hole is bored into the end of the cage. This hole, being so small, allows only one bee to gnaw at the candy at a time, and therefore the operation of releasing is necessarily slow—just what we want.

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*This is the largest number of perfect queen-cells with only two missing I ever had built by one colony at one time.

We recommend this method to beginners because its application is exceedingly simple; and then we caution further not to open the hive, as disturbance is liable to set the bees to balling the queen. Now, while the method does not give invariable success, in nine cases out of ten it works. From numerous experiments and observations which we have made, we have come to the conclusion that opening the hive just as the queen is released is quite apt to make the bees ball her. The poor little chaps know that something is wrong, and, by a mistaken notion, put the blame all on the queen. We do not know positively that this is the case, but only surmise that it may be so, in view of our experiments; for we can judge only by results and the behavior of the bees under certain conditions.

Your footnote suggests to us another idea. We have found that colonies that are the meanest about accepting a queen are, as a general rule, excellent cell-builders. How does this coincide with your experience?]

NOTES FROM A. N. DRAPER.

DOOLITTLE'S METHOD OF REARING QUEENS.

The imported queen came to hand. I thought I had lost her, but I think she is all right, as I saw lots of young brood in the hive a few moments ago; but I could not take time to look her up. I think you are making a big mistake in advising the use of your shipping-cage for the purpose of introducing queens. I followed your advice, and tried it. The bees were still trying to ball the queen in the cage after 48 hours. I went to the shop and got a cage that is just large enough to admit of a small corncob at each end for a stopper. I use these cages just about a foot long. I find that they are just the thing where bees will persist in balling a queen, as the queen can just walk clear away from where the bees are trying to ball her. I don't know whether this idea has ever been published before or not; but I have been using these long cages for several years with good success.

I am surprised at Manum's advice on page 493, July 1st No. of GLEANINGS. Is it possible that Manum has never heard of Doolittle's method of starting queen-cells? Manum's way of handling the old hive is all right to get plenty of royal jelly, then you must stop right there and follow Doolittle to the letter if you want the very best queens. At first I had a good deal of trouble to get a quill in proper shape so that I could handle the little three-day-old larva to advantage. Now I use any kind of quill; simply shave it down to about $\frac{1}{16}$ of an inch in width at the point where you want to use it to lift the larva, then press the point of the quill against the side of a hot smoker, when the quill can be made to assume any shape desired, and it will retain this shape on being removed from the smoker. By no plan that I have ever tried can I get queens so uniformly good as by the Doolittle plan. When I want real light-colored queens I get the whitest wax possible to make my queen-cell cups of. It is interesting to make part of the cells of white wax and part of colored or dark wax, and note the result.

On page 829, *American Bee Journal*, Mr. Doolittle speaks of "ring-straked, speckled, and spotted," etc. Why not rear queens with the "ring-straked, speckled, and spotted" predominating? If you want a dark spot, simply bore a little hole in a white wax cell, after the embryo queen has been sealed over, by first cutting into the base of the cell and carefully observing how the queen is facing. The hole can be placed just where the dark spot is wanted. Then fill the hole up with dark-colored wax. I am trying several of them now, to see if I can start a spotted variety.

My honey-flow was of short duration—only about ten days. It comes in slowly some days yet. The best yield was when the ground was wet, and especially when there were heavy dews during the night. Just as soon as the dew was not heavy in the morning, the honey-flow ceased. I had never noticed this so closely as I did this summer, from the fact that I have been turning my horses out in the pasture every night, and then going after them myself on foot, the first thing in the morning. I have been noticing the Spanish needle some too, lately. It is in great abundance, and is thrifty and large for the time of year, probably on account of so much rain.

I have just examined the hive with imported queen. I found her majesty all right, with considerable brood, and I immediately prepared two dozen queen-cell cups and placed the young larvæ in them, according to the most improved method. I shall replace nearly all of my queens yet this fall and summer. I am satisfied, that "around the queen centers all there is in modern bee culture." With extra good queens, success is far more certain.

Friend Stone writes me that the Chicago meeting of the Illinois State Association will be about the time of the opening of the World's Fair. We ought to have a large attendance.

A. N. DRAPER.

Upper Alton, Illinois, July 4.

[The idea that new white comb furnishes queen-cells producing queens of lighter color than those reared from cells built on dark comb was brought up and discussed years ago; but I do not now recollect just what the final decision was. I am inclined to doubt, however, that a dark spot could be produced on a queen in the way suggested.] A. I. R.

AN ARTISTIC STUDY FOR THOSE WHO LIKE IT.

HOW TO MAKE COPIES ON PAPER OF BASSWOOD LEAVES, ETC.

The end and aim of all knowledge and observation is to produce rational, thinking, human beings; and I believe that study and observation in the realm of nature is one of the most important of the means employed, and one that ought to be encouraged in every one of us, and especially by the young; for always and ever the young are the hope and strength of the future.

One of the best and most beautiful ways of studying leaves, grasses, and a myriad of natural objects of similar nature (aside from the objects themselves) is to have a precise and exact duplicate—a leaf, for instance, where you may get a complete drawing of every fiber, vein, and part, with all exactness, and with the utmost regard to detail. A little practice and pains is all that is needed. Now for the manner of operating.

Select a leaf of strawberry, maple, or any other that you desire to have an exact copy of, and determine what side of the same you shall copy, and commence as follows: Take a sheet of smooth paper, somewhat larger than the object or leaf, and smoke it black over a tallow candle, lamp, or stove—over any thing, so as to get a deposit of soot upon the paper. Smoke evenly and not too thickly. Lay the paper on a smooth surface, and gently drop a leaf, the desired side down, on the black surface. Put another paper over the leaf, and gently press and slightly rub over all portions of the object underneath, being extremely careful that the leaf does not move sidewise. Having prepared a nice clean sheet of smooth white paper for your finished picture, take the leaf with an upright motion, or with a pin, from the black surface, and place the leaf on the fine paper. Lay a very clean paper over the leaf as before, and press and rub as before, using great care. Remove the leaf as before, and a perfect copy of the objects is before you, better than can be drawn by hand.

The picture as it is now will be injured with the slightest rub or contact with any moving surface; but it can be made as durable as need be, or as any print, by spraying the same with artists' crayon fixative, made as follows: 1 part white gum shellac; 3 parts alcohol; or you can fix the picture moderately fast by putting some strong coffee in a shallow dish and floating for a moment the picture, face down, upon it. The coffee will give the paper a tint, but that is no great objection. If it is, then use fresh milk; but the fixative is a little the best.

I have seen books of such collections that hundreds of dollars could not buy.

You may not do the best work at first; but then, you can not expect that amount of success at any thing any more than at this. You will "get there" if you keep trying. The process is adapted to all flat objects, but more especially plant life. If the perusal of such a collection will give you half the enjoyment and serve but half the means of study and instruction it did the writer he will feel abundantly repaid. A GLEANINGS READER.

LADIES' CONVERSAZIONE.

HOFFMAN FRAMES.

MISS EMMA WILSON DISCOURSES ON THE CONVENIENCE OF SELF-SPACING FRAMES.

For many years Dr. Miller has been opposed to having more than one kind of frames in his hives. But of late the matter of fixed distances and thick top-bars having been discussed, he became convinced that something else in the way of frames might be better; and we have tried various ones until we now have nine different kinds, and it has become no light affliction. Fortunately we have kept our experiments confined to the home apiary, the out-apiaries having one kind of frame.

We both agreed that we wanted thick top-bars. That much we settled on. Dr. Miller came to the conclusion that fixed distances were a necessity, while I didn't object, *providing* they could be handled as easily. But I felt quite inclined to rebel whenever I came to handle a hive with fixed distances, because it seemed to me it took more time.

This spring it fell to my lot to do the first overhauling of all the hives with the different kinds of new frames. And what a sweet time of it I did have! I found the wedges very tightly glued in, and, to add to the difficulty, the excessive rains had swelled every thing until they were wedged in, glued in, and swelled in. We had been using two wedges to each hive, pushing one down at each end of the hive. They had been carelessly pushed so close to the end of the hive that there was not room enough left to insert a chisel. That was one reason they were so troublesome to get out. In every case I had trouble in getting them out. Finally I came to one I labored over in vain. After getting pretty red in the face with my exertions, I told Dr. Miller I didn't believe I wanted any thing more to do with the Hoffman frames. (You see, we had both agreed before this that the Hoffman, all things considered, was the best of the new frames). He laughed a little, and said, "Don't be too hasty in your conclusions. The fault may be in us rather than in the system. Perhaps our wedging is not right. We will try the wedge we use in supers, and see how it will work." Then he came and dug out the wedges in pieces, and we replaced them by one of the super wedges. This wedge is simply a straight stick, about 17 inches by ½ by ¼. We push it down between the side of the hive and the dummy, nearly to the bottom at one end, then push the top end of the stick just below the surface at the other end of the hive. This leaves the stick diagonally across the side of the hive. I think instructions have been given to push the wedge partly down and then twist it around to make it tighter. Our hives will not admit of this.

Well, after trying these wedges we found they worked nicely. I have not had any trouble getting wedges out since. And now after getting more used to manipulating it I am in love with the Hoffman. I am sure I can handle them more rapidly than the old frames. It took me a good while to believe it, but I can. And I am very sure I do not kill nearly as many bees with them either. With the old frames we have so many brace-combs that it's almost impossible to handle the frames without killing bees. These brace-combs are generally filled with honey; and every time they are pried apart the bees will cluster on them to get the honey; and when you go to replace your combs it is almost impossible to dislodge them. Some of them are sure to be killed—indeed, a good many of them, unless the operator is very careful and works very slowly. It is often a question as to which is more valuable—your time or the bees. Still, one dreadfully hates to kill a bee unnecessarily, and you will be very apt to take the time, much as you dislike to.

With the Hoffman, by taking out the dummy and one frame, you can push all the frames at one time and take a frame out of the opposite side, or you can part them and take one out from the center—in fact, you can handle them about as you please, and no danger from brace-combs either. True, some bees may be killed by being squeezed between the parts of the frames that touch; but bees are not so likely to stick to wood as they are to brace-combs daubed with honey.

With the old frames, each one must be carefully spaced; and, no matter how careful you are, they will not all be spaced just at equal distances. To be sure, the brace-combs will help. If you do not change the order of your combs you can push your brace-combs tightly together and they will be spaced about as before. But this very help is a hindrance, as here is where the killing of the bees comes in; and to avoid this you must take just so much time to get them out of your way. With the Hoffman you can give the frames a quick push, and push half a dozen of them in place at once, and feel sure the spacing is all right.

Then their being all ready to haul is another item in their favor. The hive may be picked up and placed in any position, and you are sure there is no danger of queens being killed by frames getting out of place, as every thing is snug and firm.

And, oh the comfort of not having to use any sticky honey-board! I believe that is best of all. And here again you save both time and bees. Just try putting on a honey-board that has been taken off a strong colony where the burr-combs are filled with honey, and see if it doesn't take both time and patience to get it on again and not kill any bees.

Our Hoffmans are mostly those that were first sent out from Medina, and we have not tried the latest so thoroughly.

Marengo, Ill., July 16. EMMA WILSON.

[We do not wonder that you "grew red in the face" in trying to pull the wedges out: so did we. To confess, we shall have to acknowledge that the use of wedges in connection with the Hoffman frame was a scheme of our own; but after using them one season we pulled them all out, even for use in the old-style Hoffman. We have learned that the V edges to the Hoffman end-bars render keying-up unnecessary, kill almost no bees, and, contrary to what you might expect, propolis offers very little interference. The last time we talked with Mr. Hoffman he assured us that wedges were not necessary, providing the V edges were used; and we are satisfied that he is right. If you like the old-style Hoffman frames—and they were a very good frame—you will be delighted with the new ones. And those burr-combs! How any sane bee-keeper who has tried the burr-comb and non-burr-comb frames side by side can declare for the former is beyond our comprehension. Perhaps no one has ever done so; but quite a number who have *not* used the thick top-bars insist that they do not find the burr-combs any inconvenience, and, on the contrary, they argue they are a necessity, *because* the bees need little ladders to climb up into the upper story. Our bees store honey above the thick-top-bar frame as nicely and as readily as above old thin-top-bar frames. No, no, no! when the bee-spaces are only ¼ inch, bees do not need *ladders* to climb up into the supers.

You have described exactly the two important features of the Hoffman frame; viz., being always ready for moving, and being more easily handled. It is a great comfort to be able to split the brood-chamber into perpendicular halves or quarters; to shove over the whole or a part of a set of frames at one operation, without being obliged to finger over each frame in order to get room to pull out the middle frame, and then afterward spacing them all back, on the cut-and-try plan. About half of our apiary is on Hoffman frames, and the other half on the old thin-top-bar frames and some old Hoffman frames. We have a splendid opportunity for testing the relative merits of each. Our boys are just enthusiastic over the new self-spacing frames, and they are very anxious to have us get the old combs on loose frames out as soon as possible, because, as they say, they can save time, stings, and bother all around.] E. R. R.

PREVENTION OF SWARMING.

THE CONSOR PLAN.

John Consor's idea, advanced in the *Progressive Bee-keeper* of May, to give the queen plenty of combs that she may not be restricted in laying her eggs, I believe is correct. This summer we had three colonies run on the Consor plan to prevent swarming, and they did not swarm. We liked the system, except the trouble of having to hunt out the queens every ten days, which is quite a task in such enormous colonies; but they gave large surplus. We had a few colonies that did nearly as well. I don't know but it was just as profitable. Once in seven days I would open the hives and take out a comb of brood near the center, each time taking out the *same comb*, which would not weaken the colony very much nor stop its working in sections. If I put in two empty combs, only one would be filled with brood, the other with honey, and the work in sections would cease or go very slowly for a few days; but if only one was given, the queen would nearly every time fill it full of eggs, and, at the end of a week, the eggs would be hatching into larvæ. If I found queen-cells I broke off those I found without hunting much for them, and inverted the combs; not having to hunt for the queens, the work could be more quickly done. In hybrid or black colonies that are very large it is often very difficult to find the queen, especially a black colony, as the bees run so.

The colonies worked on the Consor plan, one colony gave two 36-lb. supers full, and 8 sections, making eighty 1-lb. sections. Another colony did nearly as well, giving 82 sections; but their queen was lost. We gave another from a nucleus hive, and saved the queen-cells.

The third colony lost its queen also; and when another was given it killed her, and they were slow to work in sections.

One colony in the apiary, let alone, gave two supers full of sections; 72 one-pound sections, and 10 eighty-pound section-cases. As it was near the house I took no brood from it, and it did not swarm; and all three of the above good colonies are now slowly working on their third supers. Even small colonies are bringing in a little honey daily. If our colonies had been in good condition this spring we should have secured a good spring crop of honey.

Roseville, Ill., Aug. 1. MRS. L. C. AXTELL.

[If we understand the Consor plan, it is a good deal on the principle used by the Dadants for so many years with success. Their large hives give queens unrestricted room for egg-laying, and herein is the secret, as it seems to us, of a large hive. We applied the same principle this summer to our eight-frame Dovetailed hives. By tiering them up three or four bodies high we made a large hive, tree-shaped, something as the bees have it in nature. The queen occupied two, and sometimes three stories; but the bees did not swarm—no, not even building queen-cells. This plan is not practical, however, except in the production of extracted honey. When running for comb honey we do not see how it is possible to avoid more or less swarming, because the brood-nest must be contracted to some extent in order to force the bees into the sections in the first place.]

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

A HEAVY FLOW OF HONEY AT RENO, NEV.

As I have read GLEANINGS for weeks and have failed to see our prospering State and flow of honey mentioned, it makes me feel as though it were time to give our neighboring States an idea of what we are doing in the line of bees and honey.

We are enjoying a large and wonderful flow at present. I have one swarm that I transferred out of an old-style box hive into a Dovetailed hive, July 4th; and on the 24th I received 48 one-pound sections, well sealed. I have a large number of the hives that you made in your factory in Medina, and I am well pleased with them. The improved Hoffman frame is the best that I ever saw, and I have been in the business for eight years. I started first in Morrow Co., O., and have started and built up three different apiaries in that time, with the best of success. I attribute my success to the A B C book and Gleanings, although I have read many other works, and practiced them to a small extent; but when I get puzzled I fall back on the A B C book for information, and hardly ever fail to be successful in my undertaking. As long as I have been in the business, this is the first attempt to write to any paper.

Reno, Nevada, July 23. James Clagett.

WHY THE BEES ARE CARRYING EACH OTHER OFF.

I see my bees are carrying one another off. Two bees will come out of the hive; one has hold of the other, and will pull and tug and buzz away until one gets started with its load, and away they both go. Sometimes they get on the ground in front of the hive. The one can not rise with the other, and they will part, and finally they will rise (both of them) and return to the hive. I have seen a few separate in the air, and both bees will fly off by themselves. What does mean? This is carried on extensively, sometimes five or six coming out at the same time, and it would appear as though one half was trying to carry off the other half. They have not swarmed this season, have plenty of brood, both sealed and unsealed, and some colonies are storing surplus in supers. Wm. Miller.

Emporia, Kan., June 27.

[We can not suggest the trouble with your bees unless perchance a part of them are affected with bee-paralysis. Bees having this disease are shiny black; their abdomens appear distended, and the legs and wings, particularly the latter, show in some specimens a tremulous motion. Such bees may be found crawling around the entrance and in the grass; and although we have never observed it, it is possible that the healthy bees may attempt to carry them away in the air. If your bees are not thus affected there is something the matter with those bees that are carried away. They may have been injured in the brood form.]

GRADING HONEY BY COMMISSION MEN.

Mr. Root:—We think you have hit the nail on the head at last in regard to grading. You say, "Let us hear from commission men especially," or words to that effect. Is not that the way to get the matter solved? We as bee-keepers may know better than any others what honey *is*, and which is the best; but unless we supply the consumer we can not tell how to grade or classify it to suit the trade (for the very object of grading and classification is to be satisfactory to the consumer). This as bee-keepers we can not know; but the man who is a dealer in honey knows it in exact proportion to his experience, and it is to him that we must look for instruction in this matter. The meaning of the terms of trade, "fancy," "choice," etc., may be different from what we understand them to be, and the taste of the public may be different from ours. It is the commission man and dealer who understands these things best.

A.

BEE-ENEMIES AMONG THE FEATHERED TRIBE OF MISSISSIPPI.

The worst enemy among the feathered tribe that the bees have here is a species that makes the sweetest music for our April and May mornings. "He" is fiery red, and sings more beautifully than the Baltimore oriole of your latitude. "She" is more modest in her coloring, yellow being the prevailing hue. There is another bird, about the size of my scarlet enemy, who is of a rich blackish brown. His note is also very sweet. These birds subsist entirely on honey. They crush the bee and sip the contents of the honey-sac, and then reject the fragments of their victim and catch another. They are far worse than the bee-martin or king-bird, although the latter are bad enough. I kill the bee-martin on sight. The other birds work havoc, but I can't find it in my heart to kill them.

The robbers raided two weak hives here lately. Following a suggestion in the book you sent me, I scented a rag with musk and dropped it into the assaulted hive over night. It worked like magic, and restored peace to the apiary in some way. Probably the robbers were killed on their return home. T. S. Ford.

Columbai, Miss., July 27.

A BEE-KEEPER IN TROUBLE (?).

Last September I dug a well, and found silver and tin. I have been trying to work it. I find it mostly tin. There is no one here who knows how to reduce the ore. It is in great quantity, beyond estimate. I think fully 6 per cent of the ore is pure tin. Knowing this, I thought it would turn up something before now. We have the best of courage, but no money. If you can tell us how to reduce the ore I shall have a fortune, and pay up and be a life subscriber.

Sni Mills, Mo., July 19. D. L. Lord.

[Well, friend Lord, I do not know but that I made a mistake in the heading; in fact, I hope I did. You know I am great on wells and springs, and every thing of that sort. Whenever I buy a piece of land I always feel happy in thinking that it is not only so many feet and rods and acres on the surface, but that it is all mine "way down." Whenever I see anybody digging a well, I am always curious to see what there is down under the surface; and had I found tin and silver, as you have, I do not know but I should have neglected my bees and garden, and wasted my money and time, just as you have, may be. But perhaps we had better hold on a little. Is there not one among the readers of Gleanings who can tell friend Lord how to reduce this ore and "get the *tin*"? Of course, I am interested, for he is going to take Gleanings all his life—don't you see? and then I want to see him make a success besides; and I want our great nation to have all the tin (and silver too) there is to be had. You see, we are going to need it after a while, even if we don't just now. Now, old friend, when that well of yours gets to panning out, may be I will happen down that way, and you will take me through the whole thing—won't you?—even down into the well, may be.] A. I. R.

MOVING TO PASTURES NEW NOT ALWAYS PROFITABLE.

I thought, for the good of all of those who were thinking of moving to pastures new, especially their bees, I would give you some of my experience. As usual, we began bee-keeping with box hives, three in number; bought and increased to 120 colonies; then got uneasy, and thought we could do better to go south. So we sold off all of our personal property, and went. The outcome of it all was, we came back here in five months, completely broke, and sold what bees did not get smothered in going down there, for $75. We have started to build up another yard, and have six colonies.

I have read Gleanings so much that I have fallen in love with the Home of the Honey-bees. I should like to visit you some time, and, above all, I should like to get acquainted with some of the bee-women. CLARA CUTLER.

Paw Paw, Mich., July 5.

MILKWEEDS.

Mr. Adrian J. Hesse, Bay Shore, N. Y., sends one of our common milkweeds, *Asclepius cornuti*. He wishes to know why it kills bees. He finds bees dead on it, and sent some along with the sample that he mailed to me. This is nothing new or uncommon. The large sticky pollen masses catch the bees and hold them as prisoners till they die. I figure the trap in my Manual. Even if the bee is strong enough to pull away, it drags the large mass of pollen with it, and often is regarded as an intruder by the other bees, and is dragged forth from the hive as relentlessly as are the drones when they are no longer useful. We have this species abundantly on our river-flats, close by the college; and although I find the bees made prisoners each year, I am of the opinion that the flowers are more beneficial than harmful to the bees.

Agricultural College, Mich. A. J. COOK.

NOTES OF TRAVEL

FROM A. I. ROOT.

Before leaving the Pacific States I wish to say a few words in general in regard to the fruit industry. Somebody has said that the fruit crop of California is worth more than the gold output. Very likely this is true; but every one should remember—in fact, he should keep constantly in mind the fact—that people fail in fruit-growing in California as well as here in Ohio and everywhere east. Even in California there is no excellence without great labor; and there are places where great sums of money have been invested, and yet a majority of the people say "fruit-farming does not pay," just as they say here in the east that "farming doesn't pay." In the suburbs of Pasadena, one of the most beautiful fruit-growing regions on the whole Pacific coast, there are individuals who will assure you that nobody around there makes it pay to grow fruit. And now comes another thing that some of you friends will hate to hear me say. It is this: The great achievements in the way of fruit-growing have mostly been accomplished by men or companies of large means. There are certainly great advantages in doing things by the wholesale—that is, if you can get good men to look after them and manage them. While we were at Santa Paula our good friend Rufus Touchton took myself and Mrs. Root around among the fruit-growers quite a good deal. I was especially pleased to be driven through an orchard of a hundred acres set to lemons and oranges. A very fair illustration of the way that hundred-acre orchard looked is given in the picture on next page.

The picture is not one of my taking. The Kodak is hardly equal to such a view as I wanted, and therefore I purchased a picture there that seemed to tell the story as I wanted it told. Observe the men in the trees, with their sacks strapped about their shoulders; see, also, the heaps of fruit, the arrangement of boxes, etc. To get an orange grove in full bearing like the above, one must labor for years, and it must be no slipshod labor. If the owner becomes discouraged, and loses heart, the whole bottom drops out of his enterprise at once. Unless the trees are watered with immense quantities of water they will die in a few months or even weeks. But, on the other hand, where a man is full of faith and energy, and does every thing in the best manner at just the right time, the possibilities are wonderful. But so they are here at home where I live and where you live. A man who will work for it, and who selects fruit adapted to the locality where he lives, can produce wonderful results, even from a single acre of ground.

To show you what is possible to do with a single orange-tree, I submit a cut that I found in one of the photograph galleries. It is a picture from real life, without question; but very likely the artist selected the very best specimen he could find. Perhaps this picture is one out of a thousand, but it is reality.

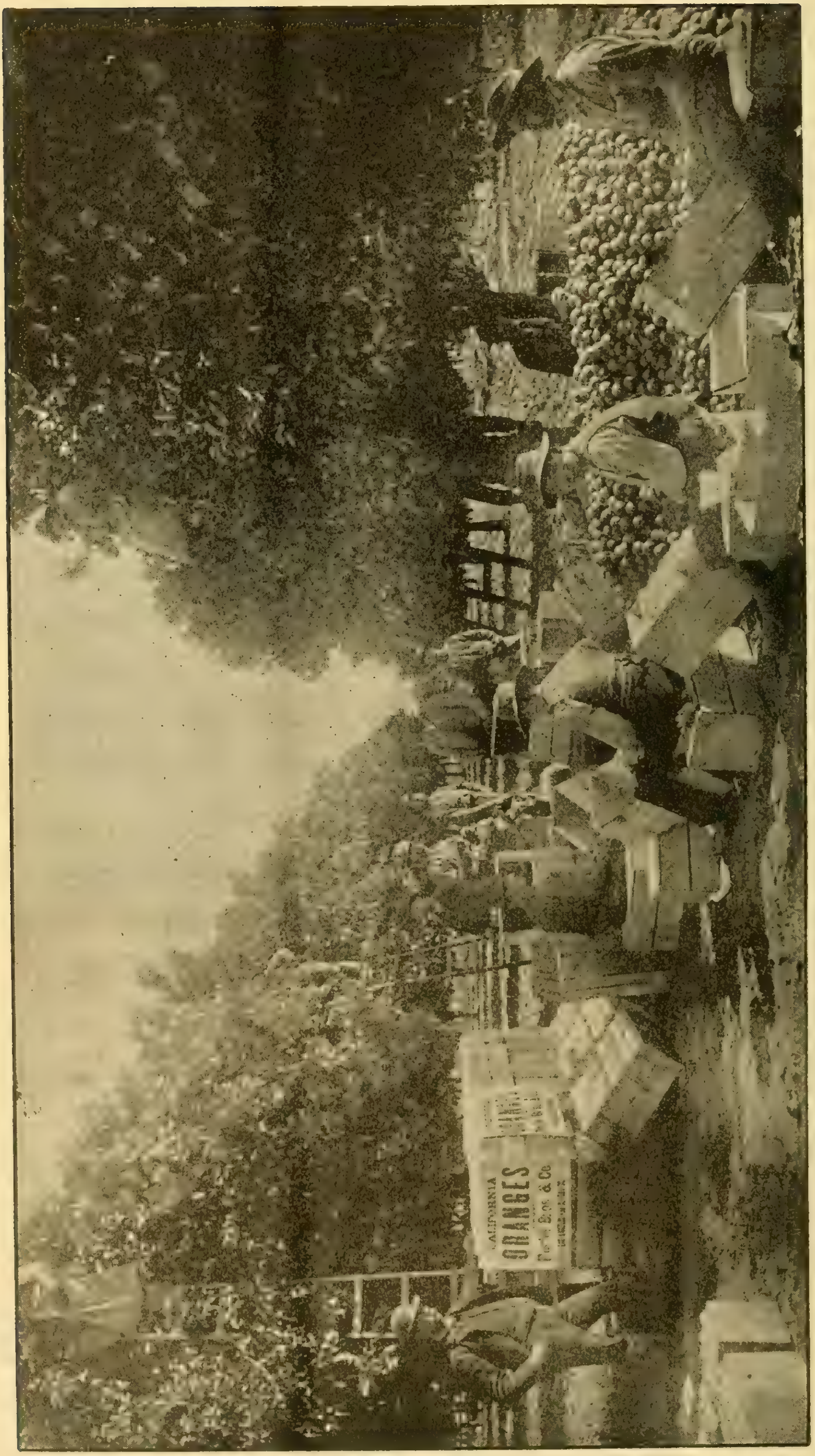
Before I go further I wish to say a word more in regard to our friend Rufus Touchton, of Santa Paula, Ventura Co. Friend T. does not belong to the same church that I do; but for all that, Mrs. Root says, and I say amen to it, that he and his good wife are two of the nicest people we found in California or in any other place. Of course, I had to visit their new church, which was then in process of construction; and afterward we had a glimpse for the first time of the Japanese persimmons as they grew on the trees. And, by the way, of all the beautiful and luscious fruits that God in his love and mercy has given us, it seems to me there is nothing much nicer than a real ripe Japanese persimmon. Perhaps three-fourths of the people who undertake to eat them do not like them at all. The trouble is, they are stubborn and contrary. You take a person who lacks charity, and he would not like a persimmon—funny, isn't it? Well, let me explain. You step up to any of the fruit-stands in Los Angeles or any other of the beautiful cities, and ask for persimmons, and the dealer will give you some mushy, rotten-looking ones. If you are one of those suspicious people who have learned about "tricks in trade," and firmly believe that every one is bent on swindling you, you will say to yourself, if you do not say out loud, "Oh, no, my good friend! you can't come any such game on us as that. No doubt you would be glad to peddle off your stale rotten fruit; and perhaps you think that, because we are new comers, you can pull the wool over our eyes by that sort of talk; but it is altogether too thin."

The experienced merchant, who knows how to serve his customers as he would like to be served himself, and who knows there is more money in the golden rule than in any thing else, pleasantly replies, "I know very well, friends, that it looks to you eastern people as if these persimmons that I offer you were unfit to eat; but, in fact, they are the only ones that are so perfectly ripened as to be really palatable. But you must overcome your prejudice a little in order to enjoy this really fine fruit. Now, I should be quite glad to sell you these firm, smooth, handsome ones; but before you can eat them you will have to take them home and keep them till they are soft and mellow like this."

"Do you mean to say that these soft things, that will almost flatten down if you touch them, are not spoiled?"

"Exactly; and if you will overcome your prejudice, and eat one of them, you will agree with me; and, besides, you will know how to eat persimmons ever afterward."

Well, I learned the trick, for such you may call it. I picked the softest and most forbidding-looking ones on the tray that belonged to the fruit-stand, and ate them with avidity; but when as wise a man as our good friend Prof. Cook, and he a college professor too, came


CALIFORNIA
ORANGES

ORANGE-ORCHARD, WITH THE PICKERS AT WORK PICKING AND PACKING THE FRUIT.

AN ILLUSTRATION OF ONE OF THE POSSIBILITIES IN ORANGE-GROWING.

along, I could not succeed in persuading him that they were *good* to eat, and he gave it up with a remark something like this:

"Well, Bro. Root, *some* people may learn to eat these mushy things, but I am afraid I never shall."

Well, when we were out on that trip with friend Touchton we passed a beautiful-shaped tree of Japanese persimmons. It was just a model in symmetry and grace; and the beautiful handsome fruits were set evenly through all the tree, just as thick as they could hang on the leafless limbs—the leaves had all fallen, you see. Why, you would have said, to look at that tree, that nature never could have produced any thing so faultless. It must have been fixed up for an exposition or for a fruit-dealer's catalogue. Why didn't I take it with the Kodak? Oh dear! the Kodak was at home; and it was so near night that we could not have time to go back and get it. If I ever do come across a truthful picture of a persimmon-tree full of fruit I will try to give it to you.

OURSELVES AND OUR NEIGHBORS.

Let the words of my mouth, and the meditation of my heart, be acceptable in thy sight, O Lord, my strength and my redeemer.—PSALM 19:14.

It was about a quarter past eleven in the forenoon. I had just awakened from my forenoon nap. By the time I had washed my face and brushed my hair hastily, the whistle blew. It was text-day; and by the time I was on hand for the noon service, the friends were gathered there, each having in his hand a neat little text, as is the custom every Thursday. There had been a beautiful summer shower the day before; and under the influence of the hot July weather every thing was growing wonderfully. I had been refreshed by my sleep, and perhaps that was why I was in a thankful frame of mind rather more than usual. As soon as I ascended the stairs it occurred to me that the hymn they were singing was one of wonderful beauty—in fact, it seemed almost an inspiration. During the singing I opened my Bible, and on a slip of paper were the words of our text. The penmanship seemed at the time wonderful; but the thing above all others that attracted my attention was the *words* of the text. During my recent travels I met, as a matter of course, many unbelievers; and I was especially pained to hear more than one good brother say that he would be glad to believe as I do, but he could not. Nothing in the Holy Scriptures seemed to come home to them as it did to me, carrying conviction that the words were unquestionably the words of God. I have thought of these friends a good deal, and I have prayed for them. In reading my Bible I have often wondered what passages or what texts would be most appropriate to indicate its divine origin; and I have taken up passage after passage in that way. You see, I wanted something that, in small compass, would cover sufficient ground to settle the question. I told you about once finding a scrap of paper in the dirt and debris and bits of leather on the floor of a shoeshop. The occupant of a drugstore adjoining the shoeshop told me afterward, that, if the Bible were all lost except that scrap of paper, that alone was sufficient to take man from earth to heaven. Well, while I held this slip of paper in my hand, and looked at the words, it seemed to me that, if the whole Bible were lost except this one little verse, this verse alone—or, perhaps, I should say that prayer, for it *is* a prayer—ought to be enough of itself to lift one from earth and its uncertainties to a conception of God, his infinity and unchangeableness. Now, then, you friends of mine who do not find the Bible sufficient of itself, listen to me for just a little time, will you, please?

Somebody—we do not know who—that is, providing we have this text and *not* the rest of the chapter or the rest of the Bible—somebody, I say, was uttering a prayer. The very first words indicate unquestionably that it is a prayer. There have been many definitions of prayer, I know; but I am going to give you a definition of my own just now. Some of you might say that prayer alone by one's self is simply to talk to one's self. No, no! it is more than that. We will suppose that the individual who gave voice to these words was one like ourselves (or "our neighbors"), if you choose, who had found by sad experience that his words were not always wise and not always the *best* words that could be spoken. Nay, further: this individual had lived a life of ups and downs, just as we do, He had met, perhaps, many discouragements. He had made resolutions to be better and to be purer; he had again and again felt dissatisfied with selfish longings and the pursuit of selfish ways. He had been groping in darkness for something purer and better beyond. He might have said, "In future I am resolved to be careful what I say;" but, dear friends, this little word "let" reveals something more. It is not only a resolution but a promise, or a *promise* and *petition* together, if you choose. He is speaking *to* somebody more than human; he is asking for help; and in this attitude, under these circumstances, he says, "*Let* the words of my mouth." This is good—it is grand—it is inspiring. It sounds like a desire and a longing to climb above human weakness—or a plea for help. And now for the second part of this wonderful sentence.

It is not only the words of his mouth, but right along come these awful, solemn words, "*the meditation of my heart.*" Some of us *talk* a great deal, and I think it is well that we do. There are, perhaps, extremes both ways; but I do love people who talk freely and familiarly with their fellow-men. Now, we talk a good deal, but we *think* a great deal more. In fact, from the time we get ideas in our childhood from our teachers to the time we close our eyes in death, we are constantly meditating. Even while asleep a sort of meditation seems still to be going on—at least, part of the time. Now, we soon learn to be very careful to keep our *meditations* to ourselves. The most of us meditate one thing, very frequently, while we *talk* something else. Oh! don't be in haste now to call us hypocrites. Surely you would not demand that a young lady who has decided to say yes when the proper time comes should talk right out the meditation of her heart. Why, when these two young people are just becoming acquainted, it would be the most foolish thing in the world for *her* to tell him exactly what she is thinking of. May be you think I get on to this subject a good deal, in regard to the relations of our young people as they emerge from their teens. Well, if I do I am sure I need not be ashamed of it. One of the most sacred and holy relations we meet here in this life is that of the sexes; and with God's love in the hearts of both of them, the relation is as holy and sacred and safe as that between parent and child. Well, now, let us go back to the prayer.

The one who is praying has, without question, some conception in his heart of an infinite being far above any thing that is human. He believes in some one who not only *hears* all words spoken by the mouth, but even looks into the innermost recesses of the heart, and reads our very thoughts. Sometimes we say, "Oh if all the world were honest!" and of late a good many seem to be remarkably fond of dwelling on the *dishonesty* of the world. They say, "Talk is cheap; but when a man gets a chance, see how quickly he lets out the secret that the almighty dollar is as dear to him as it is to the rest of us." You have heard this sort of talk, no doubt; and folks jeer at Christianity because it claims that its followers are honest, or, at least, *more* honest than people who make no profession. Well, now, dear friend (I mean you who lack faith in a God above, and in a hereafter for humanity), I want you to take a look at this individual who, ages ago, uttered this prayer. Perhaps I can not prove to you that this prayer was uttered while he was *alone* in his *closet*, or away off in the fields, under God's clear sky; but I know that *many* prayers have been uttered under such circumstances. I know it, because I have prayed in real earnest in just that way.

Let us now consider a human being or individual who, away off by himself, has honest longings to be so upright and honest and true that he can lift his heart to heaven and use these words: "Let the words of my mouth and the meditation of my heart." While he breathes these words he *believes* that God hears them. Why, there is not a bit of doubt of it. Whoever used those words in prayer felt as certain of the existence of the God above as he did of his own existence. There are wonderful things in creation, and the most wonderful thing I know of is humanity. There is no humbug or mistake about *it*. We are here in this world. All these strange things about ourselves that we have learned by experience *are true*. We are sinful, we are erring, we are ignorant. Why, we strike the boundary of our wisdom at almost every move. *I* do not know; *nobody* knows—that is, no *person* knows. *God* knows, but *we* do not. He who created us, and framed the heavens with its myriads of worlds, knows all about these things. We are just getting a little glimpse of electricity, and we are climbing higher. Every day reveals new wonders. Why, who could have supposed that all these things were all round about us, right by our sides, for ages past, and we did not know it? We were too stupid. No, stupid is not the word. Humanity has been in its infancy; and, for that matter, it is in its infancy now. God knows, but we do not. It seems to me that this conception of God is a right one. It is not all of it, of course; for God made us, and he *loves* us, the creation of his own hands. He has great plans in store for us, just as an earthly father has plans in store for his children. One of the pleasant things in our neighborhood is to see Ernest take his little boy, a year and a half old, on his wheel. A dainty little seat, of nickel and steel, is made on the front part of the machine. The little fellow claps his hands and crows with delight when his father starts off to show him something of the great world. He is not a bit afraid, for his father's arms are right beside him—each side of him, for that matter; and if he knows *any* thing in this little world, this *short* world of his, he knows of his *papa's love*. He looks up at his *father* wonderingly, and he looks out upon the *world* wonderingly; and he *enjoys* it all, because it speaks, even to his little mind, of greater and more wonderful things *yet* to be learned. *Every day* is a new experience. I verily believe every day is to him a *new delight*. The Bible teaches us of *God* the *Father;* and so does this *universe* about us teach us of God the Father. Why did he take so *much* pains, and place us at the *head* of it all, if he hadn't some loving plan for us? Why, if it were not for humanity, for "ourselves and our neighbors," if you choose, there would be no *audience* to this great play that is going on—the play on earth and the play in the heavens—an *unceasing* play. What would you think of some people or somebody who would get up some great show without any expectation of having anybody to see it? Think of the World's Exposition, if ourselves and our neighbors, *none* of us, were expected to go! Well, a universe without people would be like that; and we see the plan unfolding, exactly as little Leland sees the plan unfolding. When that little nickel-plated seat was purchased and first exhibited to his infantile gaze, he hadn't much comprehension of what it was for. But he caught on very quickly, I tell you; and we should be *stupid* and *dull* if we didn't catch on in something the same way. Now for the prayer—a *prayer* to *God*. What follows? Why, not only the words that are spoken, but the very thoughts of this petitioner, he wishes to be such as may be acceptable in the sight of this great Ruler of the wide universe. What a grand conception! Even if the text ended there, it would be one of the most beautiful and inspiring of the whole Bible. But after these wonderful words comes a confession of loving faith. This individual, who has had disheartening experiences, closes his petition with a few brief words that of themselves reveal wonders —"O Lord, my strength and my redeemer." Already in life he has become so disgusted and disheartened with his *own* strength, and with his own *wisdom*, that he counts it as *nothing* compared with the strength from on high. His feeble human strength is not to be counted—not even to be placed in the scale. All that is *worth* counting or considering is the strength that has been given again and again from the great Father above—"My *strength* and my redeemer." And that word "redeemer" holds in itself another revelation. The one who prays has been *lost;* but the Father has redeemed him, and lifted him up. He has been *bought* with a *price;* and I am sure that, as the words come from his lips, they come lovingly. There is music in the very word. Did you ever, my friend, in your life speak somebody's name again and again to yourself? Perhaps you wrote it and tore the paper up and threw it away. You loved to speak even the name of the one so dear to your heart; you loved to see it written, and it gave your blood a new impulse as it coursed through your veins. Well, that is proper and right—it ought to be so, even if it were the name of some poor mortal like yourself. But when your faith is such that you feel a thrill of joy as you utter the words of prayer with something like the words of our closing text, oh! I tell you, you are then on the road from earth to heaven; nay, more: while one foot stands on the earth, the other, I might almost say, is in heaven already.

How many times we lament that humanity is so divided! We lament that, while one pulls one way, somebody else pulls in the opposite, and so nothing is accomplished. Yes, the same state of affairs is sometimes seen in churches, and even in Sunday-schools; and you say, in real discouragement, "Oh if people would only be *agreed*—if *Christians* would be agreed! Why, if all Christians in the world would pull all together in one direction, the millenium would be here, almost, already." What shall be done —what *can* be done to cure people from pulling for self while they at the same time try to make believe they are pulling for the common good of humanity? Now, do you see the point? If you, my friend, utter the words of my text as *your* prayer, and I utter it as *my* prayer—an honest prayer, you know—why, we shall be working and praying in the same line. Our aspirations and our wants will be alike. If you really wish that God would look into our hearts and see the purposes written there, then these purposes must be honest and good—at least, we desire that they should be honest and good. If God sees our hearts, and we want him to see them—if, in fact, we *enjoy* having him look over our plans and purposes that are concealed from mortal eyes, why, there can *not* be any bad ones. And the text includes something more. It takes in the thought that, if our words and our meditations are not wholesome and proper, God will straighten us out—tell us our errors, and make us good and pure; make us love our neighbors; make us at an agreement with *him;* and if we agree with him, we shall agree with each other. Oh! but wouldn't it just be fun to do business were all people like that—where everybody desires the good of his neighbor as much as he desires his own good?

And now, my unbelieving friend, I want to leave this verse with you. I want you to be honest in this one thing, anyhow. Am I not right in saying that we should have a heaven here on earth if everybody honestly prayed—prayed to God, I mean — that simple little prayer? And now if you really feel aroused and interested in this wonderful text, I wish you would read the whole chapter. This 19th Psalm is one of the celebrated ones.

And now I want to close this little talk with two other texts that run quite parallel. Here they are:

> Search me, O God, and try my heart; try me, and know my thoughts, and see if there be any wicked way in me, and lead me in the way everlasting. PSALM 139 : 23, 24.

You will at least admit this much—I am *sure* you will, every one of you: Wouldn't this world be a better one if there were more people who honestly prayed, from the bottom of their hearts, such prayers as these I have given you?

HIGH-PRESSURE GARDENING.

BY A. I. ROOT.

PLANTING STRAWBERRIES IN AUGUST.

This will always be the favorite time, or, at least, one of the favorite times, with market-gardeners, for putting out strawberries, for the reason that spots of ground will be vacated all through this month and next. Another thing, our ground, as a rule, is in better condition to work in August and September than at any other month of the year; and especially during the past four or five seasons has it been too wet to get the ground in proper condition in the spring. I know there has been a good deal of grumbling because certain strawberry-growers have advised fall planting. Their objections may hold good so far as the average *farmer* is concerned. But with the market gardener who is accustomed to putting out plants whenever he gets ready or feels like it, and who knows exactly what he *can* do and what he can *not* do, it is just the time for him. We have been putting out strawberry-plants almost daily for a month back, or whenever a piece of ground could be cleared off. Of course, we put in lots of manure, plow it deep, and work it up fine; then if the weather is very hot, dry, and sultry, we pour about a teacupful of water around the roots of each plant. Then, to prevent baking, we cover the surface with fine dry soil. Whole rows of plants put out in this manner, during the hottest and dryest days of this hot month of August, show every plant living. Furthermore, as we ran short of plants of some varieties, to fill out the row we took up old plants with black dry roots. These, too, are growing and sending out runners. But please bear in mind that the ground was made very rich; and right where the plant was put out it was made very wet, fine dirt being pulled over the wetness, so as to prevent it from drying out. Of course, however, we have had so far good soaking rains on an average of once every week or ten days.

Now, another advantage of fall-set plants is this: If done in the proper manner they will put out runners, and you will have a nice stand of plants (not at all crowded, of course) by the time winter sets in; and if you want fruit you will get at least half a crop of the very largest and finest berries, providing always, of course, that you mulch them to keep them out of the dirt. During the next summer you can get just as complete a stand of plants for a matted row as you may desire. As a rule, work is not crowding during August and September, as it is in spring; and although we have tried both ways repeatedly, this month and the next will probably always be our regular time for putting out strawberries. After they have given us two crops, the whole bed is turned under, just as soon as the last berry is picked; and we so invariably get splendid crops of almost every thing planted, where strawberries have been turned under, I am beginning to think that a heavy growth of strawberry-plants is worth almost as much to turn under as a heavy stand of clover. Cucumbers for pickles, wax beans, late beets, and lots of other things that should be put in just about the time berry-picking is over, always thrive wonderfully after strawberries. Prof. Green, of the Ohio Experiment Station, was on our grounds this week, and he could hardly realize that the cabbages we showed him were planted after an immense crop of strawberries had been taken from the same ground.

CABBAGE-WORMS BANISHED BY THE USE OF COMMON WHEAT FLOUR.

For destroying cabbage-worms, sift common wheat flour over the plants while the dew is still on them, and it will stop the ravages of said worm. The dew makes a sort of paste with the flour, which sticks to the worm, holding him fast, and the heat of the sun later in the day destroys what remains of his majesty. I have copied and tried it. R. V. MURRAY.

Cleveland, O.

[Thanks, friend Murray. It is very comforting to know that our engraver knows "summut" about gardening as well as bees. I have several times noticed the use of flour for cabbage-worms; but my faith was small, owing to the fact that almost as many remedies have been given through the papers as we have remedies for bee-stings. With your explanation, however, I look at it differently, and we will make a test of it at once. By the way, as we wish to use as much economy as possible, even with wheat flour, can it not be used in our ordinary dust-bellows?]

WHAT IS A FAIR STRAWBERRY CROP?

I bought 100 strawberry-plants one year ago, and want to know how much fruit I should have for a good crop. I got this year only 154 quarts. Have I done well? They are Sharpless.

Jackson, Mich., June 27. W. D. HIGDON.

[Why, I should think you had done exceedingly well, friend H. A hundred plants, as we put them out, would make only 200 feet of row; and if increased so as to give over three pints of berries from the parent plant and its surrounding young plants, you should be satisfied.]

GLEANINGS
BEE CULTURE
Illustrated
Semi-Monthly
36 PAGES 7x10
$1.00 PER YEAR

READ Mr. McIntyre's article on the proposed new bee-keepers' union.

THE following, just received from the secretary of the N. A. B. K. A., will explain itself:

> *Friend E.:* You may say in the next issue of GLEANINGS, that the Executive Board of the North American has decided *not* to hold the convention during the G. A. R encampment. As soon as it is known definitely at what time toward the end of the year some society will meet in Washington, Mr. Benton will let us know, and the time of holding the meeting will be decided. W. Z. HUTCHINSON.
>
> Flint, Mich., Aug. 6.

WE have just received information from W. S. Pender, of West Maitland, Aus., to the effect that the postoffice department of New South Wales is about to reconsider the matter of admitting queens to the mails to that province; for, as you will remember, it was about to debar them. In the meantime, any live bees arriving in the province will be delivered. We hope, therefore, that the matter will be considered in the interests of bee-keepers.

OUR energetic friend Ed. Bertrand, of Nyon, Switzerland, has just sent us a copy of the 7th edition of his work, "Management of the Apiary," entirely revised, and enlarged. The mechanical work of the book is of the very best grade. As Mr. Bertrand is so well known in Europe, no recommendation of his work is necessary on our part to those who can read French. His ability as an apiculturist and as a writer is well attested by the fact that he assisted Mr. Charles Dadant in his French compilation of Langstroth. The book is handsomely illustrated with 91 cuts and 3 plates, copiously indexed, and contains 280 pages.

ON page 594, last issue, we announced that J. H. Larrabee had been discontinued from his position as experimenter in apiculture to the United States government. It will be remembered that Prof. Cook requested bee-keepers to write to the Department, asking that Mr. Larrabee be retained. Besides sending a marked copy, we sent a personal letter, and have just received word from the Department this morning, informing us that the employment of Mr. Larrabee is quite out of the question, as the appropriation by Congress has been reduced from $27,500 to $17,500, and that the latter sum is insufficient to carry on the more legitimate work of the Division. Mr. Frank Benton, however, is retained on the force at present, so apiculture will not be entirely neglected.

WE have just learned that a prominent commission house—well, this side of the Mississippi—has been adulterating its consignments of extracted honey with glucose. This information comes from one of their traveling salesmen, who stated to a retailer that the crop of honey was so short that it was necessary to piece it out with corn syrup. As the information comes in a sort of roundabout way we hope there is some mistake. We shall investigate further; and if the report is true, and they show no disposition to discontinue the practice, we may test the law. By the way, so far we have in two or three instances, as we have reason to believe, stopped the adulteration in certain places by simply warning the parties that we would prosecute if we got evidence that they were continuing that disreputable business. Well, now, a bee-keepers' protective union could do that kind of work better than we could. We need a watch-dog to see that this miserable "piecing out" work when the honey crops are small is *stopped* and *kept stopped*.

WE have received two or three letters from prominent bee-keepers, criticising the course of Prof. Cook and ourselves in making peace with Prof. Wiley so soon. Mention is made of the fact that the chief chemist wrote an article for the *American Analyst*, in which he intimated that the bee-journals have not only denied that honey is adulterated, but that they might actually be in league with the adulterators. Of course, both of these are untrue. It should be borne in mind that this article of Prof. Wiley's was *written* before (although published after) a reconciliation was effected, and when he, like ourselves, was feeling somewhat at swords' points. We have every reason to believe that he feels differently now; at any rate, we are very sure that it is a better policy to err on the side of charity. Prof. Wiley, in his letters to us, and also to prominent bee-keepers, regrets some of his public utterances, and seems perfectly willing to work hand in hand with bee-keepers. We feel fully satisfied that he and the bee-keepers at large have for a long time misunderstood each other; and the thing for bee-journals to do now is to give him a fair chance to prove his expression of good will, and we believe he is sincere.

HONEY STATISTICS—REPORTS FROM ALL PARTS OF THE UNITED STATES.

WITHIN the last two or three weeks we have received a large number of additional responses in answer to our request on page 557, asking for reports regarding the condition of the honey crop of 1892. This request, the *American Bee Journal* kindly copied, urging their readers to send on their answers to us. Through the courtesy of that journal we are enabled to make this report very much fuller and more accurate than we should otherwise have been able to do. By condensing the replies, and collating them together by States, we submit the result to you in the revised table below.

Alabama—fair.
Arkansas—indifferent.
California—very poor.
Canada—fair.
Colorado—below average.
Connecticut—poor.
Delaware—very poor.
Florida—fair to good.
Georgia—fair.
Illinois—poor to good.
Indiana—poor to fair.
Iowa—fair to very good.
Kansas—fair to good.
Kentucky—poor to fair.
Louisiana—fair.
Maine—fair.
Maryland—poor.
Massachusetts—fair.
Michigan—fair to good.
Minnesota—fair to extra good.
Mississippi—very poor.
New Hampshire—fair.
New Jersey—poor.
New York—poor to fair.
North Carolina—poor.
Ohio—fair to extra good.
Pennsylvania—fair to good.
South Carolina—fair.
Tennessee—poor to fair.
Texas—poor to fair.
Utah—poor.
Vermont—poor to fair.
Virginia—fair.
Washington—good.
West Virginia—poor.
Wisconsin—poor.

The adjective or adjectives defining the condition of the honey season opposite each State represents the majority of the reports for that State. In some cases only one or two have responded for their States, these being mostly in the South; but from the leading honey States, reports came in very freely, so we think we are enabled to give a pretty fair idea of the season. For the United States as a whole, the honey season has been a slight improvement over last year, although we can not call it an average year. It may be well to call attention to the fact shown in the table, that Ohio, Iowa, Minnesota, Michigan, took the lead in honey production this year, while California, usually the banner honey State of the Union, shows almost a total failure.

HOW DOES THIS STRIKE YOU?

One Punic, One Italian and one **Golden Carniolan** queen; all three queens and **American Apiculturist** one year for $3.00. 15-16d

HENRY ALLEY, Wenham, Mass.

☞In responding to this advertisement mention GLEANINGS.

Golden Honey Queens.

Queens in August, untested, 75c; six for $3.60; tested, $1.25; select tested, $2.00; extra select, $4.00; the very best, $7.00; imported, $4.00. 15tfdb

LEININGER BROS., Ft. Jennings, Ohio.

☞In responding to this advertisement mention GLEANINGS.

BEE-HIVES, SECTIONS, ETC.

We make the best goods and sell them cheap.

Our Sections are far the best on the market.

Our Works turn out the most goods of any factory in the world.

Our goods are known as the best throughout the United States and Europe.

Write for free, illustrated catalogue and price list.

G. B. LEWIS CO., WATERTOWN, WIS.

☞In responding to this advertisement mention GLEANINGS

FALL Eggs and Plants, Fowls, Poultry-books and Papers; finely ill. circular free. Address
GEER BROS., St. Marys, Mo.,
14tfdb Or, H. B. GEER, Nashville, Tenn.

SAVE MONEY.—Send to J. P. H. Brown, Augusta, Georgia, for his price list of supplies. Hives and foundation at wholesale rates. 4tfdb

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VIOLINS MURRAY & HEISS. CLEVELAND · OHIO ·
MUSICAL GOODS OF ALL KINDS. **GUITARS** CATALOGUE FREE
MANDOLINS

☞In responding to this advertisement mention GLEANINGS.

LITHOGRAPH LABELS

In 12 Colors, at $2.00 per 1000.

The 12 colors are all on each label. They are oblong in shape, measuring 2⅛x2⅝. They are about the nicest labels we ever saw for glass tumblers, pails, and small packages of honey. We will mail a sample, inclosed in our label catalogue, free on application, and will furnish them postpaid at the following prices: 5 cts. for 10; 25 cts. for 100; $1.00 for 500; $1.75 for 1000. A. I. ROOT Medina, O.,

---

A Four-Color Label for Only 75 Cts. Per Thousand.

Just think of it! we can furnish you a very neat *four-color* label, with your name and address, with the choice of having either "comb" or "extracted" before the word "honey," for only 75 cts. per thousand; 50 cts. per 500, or 30 cts. for 250, postpaid. The size of the label is 2½x1 inch—just right to go round the neck of a bottle, to put on a section, or to adorn the front of a honey-tumbler. Send for our special label catalogue for samples of this and many other pretty designs in label work.

A. I. ROOT, Medina. O.

Cash for Beeswax!

Will pay 23c per lb. cash, or 26c in trade for any quantity of good, fair, average beeswax, delivered at our R. R. station. The same will be sold to those who wish to purchase, at 29c per lb., or 33c for *best selected wax*.

Unless you put your name *on the box*, and notify us by mail of amount sent, I can not hold myself responsible for mistakes. It will not pay as a general thing to send wax by *express*.

A. I. ROOT, Medina, Ohio

GREAT SALE!

Until April 1st I will sell bee-supplies for nearly one-third off my former list. Send for my new red-mark price list, out Aug. 1, free.

15tfdb **W. D. SOPER, Jackson, Mich.**

☞In responding to this advertisement mention GLEANINGS.

ITALIAN BEES IN THEIR PURITY.

Tested daughters of imported queens, of this season's rearing, mated to drones from imported and daughters of imported queens only, $1.25 each; 6 for $7.00; $13.50 for 12. Large and prolific. Safe arrival guaranteed. CLEVELAND BROS.,
15-16d Decatur, Newton Co., Miss.

☞In responding to this advertisement mention GLEANINGS.

PURE ITALIAN QUEENS.

Untested, 70c each; 3 for $1.75; 6 or more, 50c each. Tested queens, $1.00 each. 14tfdb

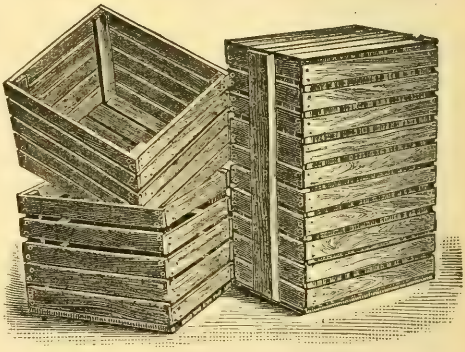
D. G. EDMISTON, Adrian, Lenawee Co., Mich.

FOR SALE.

Tested Italian queen, 60c; untested Italian queen, 50c. Italian bees, in 10-frame hive, $4.00. Address 15-16-17d

OTTO KLEINOW, 150 Military Ave., Detroit, Mich.

BUSHEL-BOXES.



ALL-SLATTED BUSHEL BOXES.

The above cut shows our new-style *all-slatted bushel box*. We have two other styles; one has slatted bottom and sides with one solid board for each end, called the *slatted bushel box*. The other has solid ends and close bottom and sides and is bound with galvanized iron and called the *galvanized bound box*. These boxes were devised by T. B. Terry for handling potatoes, for which purpose nothing could be handier. The potatoes are picked up into the boxes in the field and left in them till sold. Other crops, such as cucumbers, tomatoes, and apples are being handled in these same boxes. They are of such a size that two go crosswise in an ordinary wagon box. Outside measure is 14¼x16⅝x12½ deep, and they hold a bushel of potatoes level full so they can be piled one upon another. The above cut shows two *all-slatted boxes* nailed up, and a bundle of fifteen along side; 13 of the 15 are in the flat packed inside the other two, and nails of the proper kinds are included. The *slatted* and *galvanized bound* boxes are put up in the same way, only there are only 12 in a package instead of 15. Each package weighs about 100 lbs.

PRICE LIST.

All-slatted bushel box per crate of 15	$1.50
Slatted " " " " " 12	1.50
Galvanized bound bushel box per crate of 12	2.10

In lots of ten crates, 5 per cent discount will be deducted. Price each, nailed, 15, 20, and 25 cents, respectively. The early order discount will not apply to those boxes, but above prices are net all the year.

A. I. ROOT, Medina, O.

KIND WORDS FROM OUR CUSTOMERS.

Those Hoffman frames I bought of you this spring are the talk of the neighborhood, and pleased me all to bits.
JOHN WEIR.
Carbondale, Kan., May 13.

I received the foundation all right which you sent me. It was all right and well put up, and in good shape. I am well pleased with it.
Defiance, O., May 6. WESLEY KENDIG.

Ernest's notes on paint and painting, April 15, are worth a year's subscription to most readers who paint hives or houses.
W. W. SOMERFORD.
Navasota, Tex., Apr. 27.

The two select untested queens sent me came through last night all right, as chipper as bees well could be.
STEPHEN BRESE.
Sutton, Que., June 17.

My 3-line ad't in GLEANINGS of May 1st brought me a flood of letters from Texas to New York; no trouble to get help in the bee-yard if we advertise in GLEANINGS.
A. A. KNOTT.
Berthoud, Col., May 16.

Orders for queens are coming in by the dozen. Our 5-banded red-clover bees just fill the bill. We consider GLEANINGS indeed a good bee-journal to advertise in.
LEININGER BROS.
Fort Jennings, O., May 31.

The "best imported queen" reached me in good order yesterday at 6 P. M. The candy was a little soft—one or two bees stuck it; queen all right. She is very handsome. Many thanks.
Versailles, Ky., May 12. J. W. CRENSHAW.

Just a week ago to-day I sent you a small order, and I take pleasure in saying that *every* thing has come to hand O. K. I emphasize *every*, because I know, for I kept a copy of the order. You were very prompt.
MARK W. MOE.
Denver, Col., May 7.

Please send me another knife, Excelsior No. 46. I want it immediately. I sold my other one for 50 cts., and I want another just like it. They are grand for the price, and sell here in the stores for 70 cts.
ARTHUR J. BUCHER.
Decherd, Tenn., June 23.

The 10 Dovetailed hives in flat you sent me are received, and more than satisfactory. How so much for so little money can be furnished by you is really a wonder. It shows what machinery, under intelligent guidance, is capable of doing.
Princeton, Ind., May 4. C. A. BUSKIRK.

A KIND WORD FOR DR. MILLER.

I think Stray Straws a great improvement to your paper, especially as the straw has never been thrashed—the golden grains are all left on. May Dr. Miller live long to gather such straws.
Taylorsville, Utah, July 2. HOMER BROWN.

My goods were received in fine order, and I am well pleased with every thing. It is a satisfaction and a pleasure to look at and use such sections as you sent me. The Daisy foundation-fastener is also a "daisy."
M. NEVINS.
Silver Cliff, Col., May 5.

GOOD MEASURE.

The stands and buckwheat I ordered came in good condition. There seems to me to be fully a bushel of buckwheat, though I ordered only three pecks; but I have no way to determine exactly. I am well pleased with the stands. They are all we expected.
Gastonia, N. C., May 11. W. C. C. FOSTER.

HOW OUR DOVETAILED HIVES PLEASE.

The last lot of 100 hives are of good lumber, and dovetails are better made than any we have yet had. If we can depend on getting such goods always, we can hold our trade, and can favor you with quite a number of carloads of the Dovetailed hives this coming winter.
JNO. NEBEL & SON.
High Hill, Mo., June 7.

A GOOD WORD FOR THE ONION-PLANTS BY MAIL.

In response to request on page 587, last GLEANINGS, I will say that the onion-plants I got by mail are wonderful. I never saw any thing equal to them. Not a plant failed to grow. Onion-plants by mail are a success; no more sets or sowing seed for me.
M. H. HUNT.
Bell Branch, Mich., Aug. 3.

I received the honey-frames yesterday, and they are all right—the best frame I ever saw. I told my wife, that, when a man gets any thing from A. I. Root, it is right, and always up to order in every respect. Accept thanks for good goods and your prompt work.
H. D. BRUBAKER.
Erwin, Ind., July 14.

A. I. Root:—I was much interested in your sermonizing in last GLEANINGS. If you have written any thing in a similar strain in previous numbers I should like to see it. Please send copies, as our exchanges are destroyed, and I will remit. I always try to glance through GLEANINGS, but very seldom read it, for lack of time and partly for lack of interest in bee matters.
J. G. KINGSBURY,
Editor *Indiana Farmer.*
Indianapolis, Ind., June 17.

THAT BINGHAM SMOKER.

Accept thanks for GLEANINGS report. I am glad the device is convenient, and more so by use. O. J. Hetherington gives almost word for word the same result—"Improves by use." He turns the smoker to the right. I have several reports; all agree so far. Prospect of immense basswood bloom.
Abronia, Mich., July 4. T. F. BINGHAM.

BRIGHT-YELLOW VERSUS THE YELLOW-COLORED STOCK.

Please find inclosed $2.00 for two untested Italian queens. Please send as soon as you can. I have tried queens from several different breeders, but no queens have ever done as well as the one I got from you. There is no place in my yard for the flashy yellow bees, any more. Of all the queens I have ever bought, except the one from you, none has proved prolific, some never laying over four frames of eggs at any time of the year. I want no more queens from such stock.
WM. HOUSEL.
Wertsville, N. J., June 27.

With pleasure I announce the arrival of our bees, which came to hand on the eve of the 7th inst., in good order, considering the distance they came and the length of time they were on the road. One of them was nearly out of feed, so I had to give them one square meal, and then they were ready for the field. From some cause or other the one had more dead bees than both of the others together, but was not reduced in numbers to hurt them. They are all doing finely, and are busy to-day gathering honey and pollen. You sent a No. 1 queen.
BERKSTRESSER & FREDERICK.
Elberton, Wash., June 11.

GLEANINGS AND THE WIDE CIRCULATION OF ITS ADVERTISEMENTS.

I am glad you get inquiry and calls for the West queen-cell protector and cages, and I gladly send you circulars. When you want more, let me know. The cage and protector are giving good satisfaction all over the world, I guess. I this day send a box of cages to New Zealand. They saw the advertisement in GLEANINGS, April 15, 1891. So says the letter that ordered the goods. Mr. Root, where doesn't your paper get to? I have received orders from England, France, Canada, and from every State and territory in America, I think, that say, "I saw the advertisement in GLEANINGS."
N. D. WEST.
Middleburgh, N. Y., July 15.

KIND WORD FROM A MISSIONARY.

The tools have arrived, and give good satisfaction. They are a treasure in this out-of-the-world place. GLEANINGS makes its appearance along with many periodicals; and although it is not much in my line, I find a few moments to glance at nearly every copy, and fail to do so without pleasure and satisfaction. My office is a sort of box bee-hive, but honey does not accumulate. We are trying, however, to distribute to these people, as wild as the birds, the sweets of heaven, and this is making changes among them. Some 316 converts have put on Christ, as we believe, during the year just closed, and we expect them to come in still larger numbers.

M. C. MASON.

Tura, Assam, British India, Apr. 15.

Black and Hybrid Queens For Sale.

I have 30 mismated Italian queens, all young, and No. 1, 35c each; 3 for 90c; 8 blacks, 20c each; 3 for 50c. JAMES M. GORDON, Belmont, Belmont Co., Ohio.

I have 40 mismated Italian and Albino queens for sale at 25c each, or 5 for $1.00, or 11 for $2.00; they are all young and prolific.

J. W. TAYLOR, Ozan, Ark.

We have a few fine mismated queens, one year old, at 25c each, or 5 for $1.00. All the queens are fine prolific ones. Can send same by return mail.

F. A. LOCKHART & CO., Lake George, N. Y.

Sixty hybrid and mismated queens for sale; mismated, 35c, or 5 for $1.00. Hybrids, 25c each.

J. W. POOLE, Russellville, Ark.

Hybrid queens at 20c; and mismated Italian queens at 30c. C. G. FENN, Washington, Ct.

SPECIAL NOTICES.

DISCOUNTS FOR EARLY ORDERS.

We call the attention of our customers to the fact that, on such goods as you find on pages 10 to 30 of our price list that you buy for next season's use between now and Dec. 1, a discount of 5 per cent may be deducted. This applies to goods of our manufacture only, which are found between pages mentioned.

WHITE DUTCH CLOVER SEED WANTED.

This seed seems to be very scarce in the market, and hard to get. If any of our readers have any, or know of any for sale, they will oblige us by sending a small sample; at the same time write, telling how much you have to spare, and what you will take for it. If we can not use every lot submitted we may be able to find you a market for it.

STRAWBERRY-PLANTS FOR IMMEDIATE DELIVERY.

On account of the recent rains we have now an abundance of strawberry-plants of the following varieties: First our old varieties, Jessie, Sterling, Bubach, Haverland, and Warfield (the last four being pistillate varieties.) These are for sale at our old established prices: 10 cts. for 10; 75 cts. per 100, or $6.00 per 1000. Our friends will observe that we have dropped the Gandy. Of the new varieties we have selected Parker Earle and Edgar Queen, both staminate. These will be just double the prices of those above. If wanted by mail, add 5 cts. for 10, or 25 cts. per 100, for postage. We can furnish strawberry-plants from the present time until the ground freezes—say late in November.

NEW COMB AND EXTRACTED HONEY.

We have, during the past few weeks, received quite a number of offers and samples, and have bought a few small lots. We have not secured much comb honey as yet, but are expecting more to arrive soon. It is little use for those in far distant States to send samples and offers, as the cost of transportation is so much in small lots that it pays to move it long distances only in carload lots. We shall be pleased to receive offers from this State and those near by. We offer choice white honey to those who wish to buy, at the following prices:

Extracted basswood, in 60-lb. cans, 9c per lb. In lots of two or more cases of two cans each, 8½c.

White comb honey in 24-lb. cases, single-case lots at 19c; 4 cases or over, 18c; a full crate of 9 cases at 17c per lb.

EGYPTIAN OR WINTER ONION-SETS.

These will grow anywhere, and *winter* anywhere —at least, I never heard of a failure in wintering. The only drawback is, that they do not produce a large onion, like the American Pearl. They are specially for bunch onions early in the spring, and for this they are far in advance of any thing else known, and require no trouble whatever. If planted on very rich soil, you can pull them and sell them in February, if the ground happens to be thawed out. One set planted *now* on very rich market-gardening ground will make a dozen onions or more by next spring. As we have a very large crop of these winter onions ready to ship we will, until further orders, send them for 10c per quart; 75c per peck, or $2.50 per bushel. If wanted by mail, add 10c per quart for postage.

ONION-SETS AND ONION-SEED.

Early in September we expect to have extra early Pearl onion-sets for sale at 25c per quart, $1.75 per peck, or $6.00 per bushel. If ordered by mail, 10c per qt. extra. Now, if you purchase these it must be on your own responsibility. If you set them out any time in September they will come up and grow in any locality; but as to their wintering over, you will have to take your chances. Here in Medina we have wintered them over two seasons with scarcely a failure, and we shall plant them largely again this fall. A little further south the *seed* may also be sown in September, and it will grow all winter and produce onions a little later than where sets are planted in the fall. The price of the seed will be $4.00 per lb. We have, under favorable circumstances, got fine onions in the spring, from seed sown in September; but it is very uncertain in our locality.

BUSHEL BOXES.

It is nearing the time when potatoes, tomatoes, onions, and other special crops must be taken care of; and those who handle them will be (or ought to be) considering the easiest, cheapest, and best means of doing so. T. B. Terry has conclusively shown, in his admirable little book, the A B C of Potato Culture, that potatoes bring a better price, can be handled with less work, and better in every way, by using bushel boxes. More and more each year are learning the truth of Mr. Terry's reasoning, and some are also finding out that these boxes are equally valuable for handling other crops, such as onions, tomatoes, cucumbers, melons, etc. We make and keep in stock three styles of these boxes, as advertised in another column. If none of these is to your notion, we are prepared to make any style you want, in any quantity (not less than 100), at very low prices. We use basswood, which holds nails without splitting, and is lighter than any other wood we could use. Dealers or agents wishing to work up large orders will do well to write us for special prices.

SECOND-HAND MACHINERY.

During the past few months we have bought up several outfits of machinery for making bee-keepers' supplies; and if any of our readers or their friends contemplate putting in machinery we are prepared to fit you out from cellar to garret with everything you need in engines, boilers, machinery, shafting, pulleys, hangers, belting, saws, etc. The following is a partial list of the second-hand machinery we have to sell. If you desire further particulars we shall be pleased to hear from you.

One 20-H. P. Fishkill horizontal engine, rebuilt, and as good as new; would cost new, $400; will sell for $200.

One 5-H. P. horizontal engine and boiler, with engine mounted on boiler, in good running order. Price $150.

One 24-inch two-roll Fay sandpaper machine, nearly new. Price, new, $450; will sell for $175.

One V-groove section machine, nearly new. This is our make, old style, with screw-feed; sold some years ago for $75; will sell now for $40.

One cutter-head, with table complete, for cutting entrances to sections. Old style, but nearly new, and in good repair. Price, new, $25.00; will sell for $15.00.

One double-head tenoning-machine, especially arranged for making the combined rabbet and miter joint of the Simplicity hive, but can be used for making sash and window-screen frames, etc. We could not build such a machine, and sell it for less than $150; we will sell this for $60.

Two extra large saw-tables for general use, to cut off or rip, with counter-shaft attached to frame; worth new, $50 each; will sell for $20 each.

Two four-piece section-machines, as good as new. They cost new, $85 each; we will sell them for $30 each.

RUBBER STAMPS.

We have for the past twelve or fifteen years been furnishing our patrons with rubber stamps which we have had made for us by various manufacturers. As our trade has been growing, and we have occasion to use a good many ourselves, we have felt justified in purchasing an outfit, and will hereafter furnish stamps of our own manufacture. We are preparing a catalogue of these goods, which we hope to have ready in a few weeks. In the meantime we mention here a few of the specialties, with cut, description, and prices at which we can furnish them. Rubber stamps are coming more and more into general use, and we feel safe in saying that they will continue to do so. If all our customers would use a stamp with their name and address we should not have so much trouble in figuring out poorly written signatures and addresses. It is not uncommon for us to get letters without the address at all, and sometimes without the name signed. All these troubles might be avoided by the use of a rubber stamp. Your little boy or girl might stamp your paper and envelopes beforehand, so that, if you sat down to write a letter or order in a hurry, the name and address would be on it if you did forget to write it; in fact, you would be relieved of the necessity of thinking of that part of it at all. A good many producers of nice comb honey are in the habit of stamping each section with a stamp similar to this:

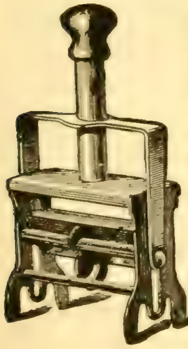
CHOICE
COMB HONEY
FROM THE APIARY OF
A. I. ROOT,
MEDINA, O.

If the honey is real nice, the persons who eat it will ask their dealer for more from the same apiary, and you thus not only work up but keep a demand for your honey. A rubber stamp is neater for this purpose than a label, and is more quickly applied.

In making stamps we have a very large variety of job type, used in the advertising columns of GLEANINGS, and in job and label printing, to mold from, and are thus able to give you a more neat and tasty job in more modern type than most of the small dealers with only a few fonts of type to work from. We can mold a press full of stamps about as cheaply as a single one; we are thereby able to make better prices on club orders; and if any of our readers wish to act as agents we should be pleased to hear from them.

In ordering rubber stamps, be sure to write very plainly just what you want the stamp to print; and if possible, in the shape you want it.

Midget Self-Inker.

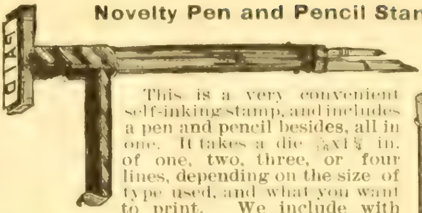


This is the most convenient stamp to use; and if you have to use it a good deal it is the cheapest, as you don't have to spend time inking it, that being done automatically. These are made in various sizes, as per the following diagram. No. 4 is a size we sell a good many of for marking sections. We furnish these stamps with any lettering desired, and include a small bottle of ink at the following prices, which are a third less than the lowest list we have seen:

No. 1	Midget self-inker,	$ .50
No. 1½	" "	.60
No. 2	" "	.75
No. 3	" "	.90
No. 4	" "	1.00
No. 5	" "	1.50
No. 6	" "	1.75

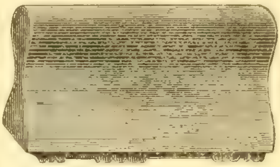
For $1.00 each extra we can furnish the No. 4 and larger with band-dating attachment, so that a date line will appear in the center of the stamp. The smaller sizes can be furnished with movable dates at 50 cts. each extra. With above and the pencil stamp following no pad is necessary, as that is attached to and is a part of the stamp. With the molding and block stamps you need one of the self-inking pads below.

Novelty Pen and Pencil Stamp.



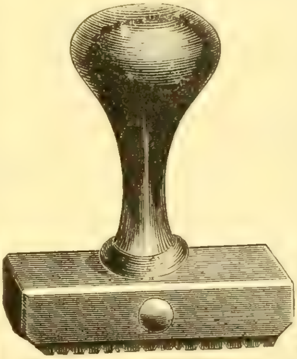
This is a very convenient self-inking stamp, and includes a pen and pencil besides, all in one. It takes a die $\frac{3}{8}$x1$\frac{5}{8}$ in. of one, two, three, or four lines, depending on the size of type used, and what you want to print. We include with each a small tube of ink, as shown to the right. The lowest price you will usually find for these is 50 cts. Our price is 25 cts., or a club of 5 for $1.00.

Molding Stamp.



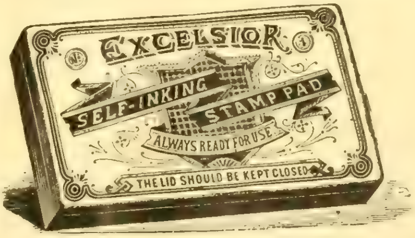
This is the cheapest style of stamp we make. The rubber is mounted on polished cherry molding, as shown. These are nicely finished, and vary in width from $\frac{3}{16}$ to 1 inch, and up to 3 inches long or over, depending on the size and number of lines of type used. Price of molding stamp, without ink or pads, for one line not over 3 inches long, 15 cts.; 2 lines, 25 cts.; for each additional line, 5 cts. Over 3 inches to 6, double above prices.

Block Stamp.



These are mounted on a cherry block, with a turned enameled handle, as shown, and can be made any size up to the size of a postal card. This is a style very much used as a business stamp, and the print can be round, oval, or oblong, with or without border. The price without ink or pad, and not over 3 inches long, will be 25 cts. for one line; 35 cts. for 2 lines; 5 cts. for each additional line. A border adds 10 cts. From these data you can figure the price of any style you want.

Excelsior Self-inking Pads.



These are now so cheap that it does not pay to bother with the old-style felt pads and ink.

PRICE LIST.

No. 0 Excelsior, 2x3¾, 20c. No. 1, 2¾x4¼, 25c.
No. 2, 3⅛x6⅛, 40c. No. 3, 4x7, 60c.

We can furnish any color, as follows: Red, violet, blue, black, green, or eosine. Unless otherwise specified we will send red or violet. Above prices include postage in every case; the pads, by freight or express with other goods, at 5 cts. each less.

Any thing else in the rubber-stamp line not mentioned above will be furnished at lowest price.

DOVETAILED HIVES, SIMPLICITY HIVES,

SECTIONS, EXTRACTORS, ETC.
A FULL LINE OF
BEE-KEEPERS' SUPPLIES.
60-PAGE CATALOGUE. 1tfdb

J. M. JENKINS, WETUMPKA, ALABAMA.

☞In responding to this advertisement mention GLEANINGS.

Foundation Reduced 3 cts. Per Pound.

SECTIONS I sold at $3.00 now selling at $2.60. Bingham Smokers at cost. Send for Free Price List of every thing needed in the apiary. 6tfdb **M. H. HUNT, Bell Branch, Mich.**

ROOT'S GOODS FOR THE EAST.

Bee-Keepers of the East should

Bear In Mind that we have established at Syracuse an **Eastern Branch**

where our Bee-keepers' Supplies are kept for sale, and prompt shipment. You can save time and freight by ordering from our Eastern Branch. We have engaged Mr. F. A. Salisbury to take charge of this business, and he will treat you well. He will be pleased to send you a list of goods kept in stock.

Address all orders,

EASTERN BRANCH, F. A. SALISBURY, Agent, Syracuse, N. Y.

JENNIE ATCHLEY

Will send you either three or five banded Italian queens in June, July, and August, 75c each; $4.20 for 6, or $8.00 per doz. Safe arrival and satisfaction guaranteed.

1tfdb **Floyd, Hunt Co., Texas.**

Please mention this paper.

ALWAYS ON TOP

Our Golden and Leather Colored Italian Queens. Bred for Business.

Tested queens, $1.10; untested, 70c; 3 for $2.00. Our stock consists of 300 colonies devoted to bees and queens for the trade. **Orders filled by return mail.** Send for catalog of supplies, etc.

JNO. NEBEL & SON, High Hill, Mo.

P. S.—A. J. Fields, of Wheaton, Ind., writes: "The queen and bees received of you last spring made 147 lbs. of comb honey, and took first premium at three fairs." 8tfdb

☞In responding to this advertisement mention GLEANINGS.

SECTIONS.

$2.50 to $3.50 per M. Bee-Hives and Fixtures cheap. **NOVELTY CO.,**
6tfdb **Rock Falls, Illinois.**

WANTED—LADY OR GENT IN EACH county to distribute and collect for Brabant's ladies' toilet cases; 238 articles, worth $1; will send sample and full particulars by mail for 35c in stamps; returnable if not satisfactory; territory free; $3 to $5 per day easily made. Address J. C. FRISBEE, general agent, 172 Maple St., Denver, Col.
Reference, A. I. Root, Medina, O. 8-24db

☞In responding to this advertisement mention GLEANINGS.

Get the Best!

Five-banded Golden Italians that will give satisfaction. Queens by return mail, $1 each; 6 for $5; for full particulars send for circular. 13tfdb

CHAS. D. DUVALL, Spencerville, Md.

Muth's

Honey - Extractor.

Square Glass Honey-Jars,
Tin Buckets, Bee-hives.
Honey-Sections, &c., &c.
Perfection Cold-Blast Smokers.

APPLY TO
CHAS. F. MUTH & SON, Cincinnati, O.

Send 10-ct. stamp for "Practical Hints to Bee-keepers."
Please mention this paper.

IF YOU WANT BEES

That will just "roll" in the honey, try **Moore's Strain of Italians**, the result of 13 years' careful breeding. Reduced prices: Warranted queens, 80c each; 3 for $2.00. Strong 3-frame nucleus, with warranted queen, $2.50. Safe arrival and satisfaction guaranteed. Those who have never dealt with me I refer to A. I. Root, who has purchased of me, during past 12 years, 582 queens. Circulars free.

J. P. MOORE, Morgan, Pendleton, Co., Ky.
13tfdb Money-order office, Falmouth, Ky.

In writing to advertisers please mention this paper.

JUST OUT!

TILE ✠ DRAINAGE.

BY W. I. CHAMBERLAIN, A. M., LL. D.,

Formerly Secretary of the Ohio State Board of Agriculture, and late President of the Iowa State Agricultural College. At present Associate Editor of the Ohio Farmer.

This is a valuable companion to our other rural books. It embraces the experience of forty years of one of our foremost practical agriculturists, who has laid with his own hands over 15 miles of tile.
Price 35c; by mail, 40c.

A. I. ROOT, MEDINA, OHIO.

Best on Earth.

More than one hundred thousand Bingham & Hetherington Honey-knives and Bee-smokers in daily use. Illustrations sent free.

Bingham & Hetherington,
Abronia, Mich. 7tfdb

IF YOU WANT BEES

That will just "roll" in the honey, try **Moore's Strain of Italians**, the result of 13 years' careful breeding. Reduced prices: Warranted queens, 80c each; 3 for $2.00. Strong 3-frame nucleus, with warranted queen, $2.50. Safe arrival and satisfaction guaranteed. Those who have never dealt with me I refer to A. I. Root, who has purchased of me, during past 12 years, 582 queens. Circulars free.

J. P. MOORE, Morgan, Pendleton, Co., Ky.
13tfdb Money-order office, Falmouth, Ky.

In writing to advertisers please mention this paper.

Bee - Keepers' ✻ Supplies.

We are prepared to furnish bee-keepers with supplies promptly and at lowest rates. Estimates gladly furnished, and correspondence solicited. Our goods are all first-class in quality and workmanship. *Catalogue sent free.* Reference, First National Bank, Sterling, Ill. Address 1-24db

WM. McCUNE & CO.,
Sterling, Illinois.

☞In responding to this advertisement mention GLEANINGS.

---

500 Colonies of Bees Devoted to Queen-Rearing.

Write for prices on large quantities.

TWO MILLION SNOW - WHITE SECTIONS.

Write for prices on large quantities.

Send for our 24-Page Catalogue of Dovetailed Hives, Smokers, Extractors, Etc.

LEAHY M'F'G CO., Higginsville, Missouri.

Please mention this paper. 5tfdb

IMPORTED ITALIAN QUEENS. $3 25; UNTESTED, 50c.
12tfdb W. C. FRAZIER, Atlantic, Iowa.

75c. Golden Queens by Return Mail. 75c.

My Golden Italians are good workers, and gentle. Queens are carefully bred from best stock. Three queens, $2.00; six for $3 50; dozen, $6.00. Safe arrival and satisfaction guaranteed. Money-order office, Daytona, Fla.

JOHN B. CASE.
11tfdb **Port Orange, Vol. Co., Fla.**

☞In responding to this advertisement mention GLEANINGS.

BEE-HIVES, SECTIONS, ETC.

We make the best goods and sell them cheap.

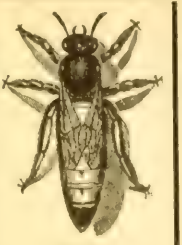
Our Sections are far the best on the market.

Our Works turn out the most goods of any factory in the world.

Our goods are known as the best throughout the United States and Europe.

Write for free, illustrated catalogue and price list.

G. B. LEWIS CO., WATERTOWN, WIS.



CAUSE.

80 LBS. PER COLONY

is the record of three of our golden queens, with several others not far behind, while the best record of any other race is 42 lbs. from 3-banded bees.

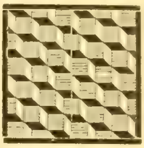
We are making a specialty of these beauties for business, and are so sure that they will please you that we guarantee them to give

ENTIRE SATISFACTION,

or we will return your money. Could you ask more?

The bees from our best queens are not banded, but are all yellow on the first four scales, and the fifth is part yellow, with an occasional bee with a little yellow on the sixth scale. The above honey record is of white clover in 1-lb. sec's, worth $12 in our market today. No drones near us but the yellowest. One warranted queen, $1; 12 for $11.

Reference: A. I. Root.



EFFECT.

S. F. & I. TREGO,
15-18db **Swedona, Ill.**

☞In responding to this advertisement mention GLEANINGS.

JENNIE ATCHLEY

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1tfdb **Floyd, Hunt Co., Texas.**

Please mention this paper.

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JNO. NEBEL & SON, High Hill, Mo.

Sections

at $3 per 1000. These are perfectly smooth, and first-class. Brood foundation 45 cts. per lb. All supplies equally low. Goods shipped direct from New York city. 1-18dt.

I. J. STRINGHAM,
92 Barclay St., N. Y.

Get the Best!

Five-banded Golden Italians that will give satisfaction. Queens by return mail, $1 each; 6 for $5; for full particulars send for circular. 13tfdb

CHAS. D. DUVALL, Spencerville, Md.

Queens by Return Mail.

Reared in the natural way from swarming cells. Just look at the following very low prices, and order at once.

Tested, each, $1.50; warranted purely mated, each, 80c; warranted purely mated, ½ doz., $4.50; warranted purely mated, per doz., $8.00.

All the above are reared in full stocks from my old reliable honey-gathering strains. Address

WM. W. CARY, Colerain, Mass.

Send for 40-page catalogue. Full line of Bee-keepers' Supplies and Bees at prices way down. 13tfdb

Please mention this paper.

TAKE NOTICE!

BEFORE placing your orders for SUPPLIES, write for prices on One-Piece Basswood Sections, Bee-Hives, Shipping-Crates, Frames, Foundation, Smokers, etc.

PAGE & KEITH,
14tfdb New London, Wis.

Please mention this paper.

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CONVENTION NOTICES

The Colorado State Bee-keepers' Association will hold its "Honey Day" at Longmont, Sept. 28. H. KNIGHT, Sec.
Littleton, Col.

Black and Hybrid Queens For Sale.

I have 40 mismated Italian and Albino queens for sale at 25c each, or 5 for $1.00, or 11 for $2.00; they are all young and prolific.
J. W. TAYLOR, Ozan, Ark.

Hybrid queens at 20c; and mismated Italian queens at 30c. C. G. FENN, Washington, Ct.

We have 15 very fine young mismated Italian queens, reared from best imported mothers, at 30c each. No bees from these queens show less than two yellow bands. Safe arrival of queens guaranteed.
CLEVELAND BROS.,
Decatur, Newton Co., Miss.

I have 8 black and hybrid queens which I will send free to any one as long as they last. I will not promise to send them by return mail, but will send some time before the middle of October.
W. D. LARKIN, West Berlin, Mass.

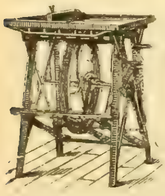
I have a lot of hybrid queens that I will close out at 20 cts. each.
GEO. A. WRIGHT,
Glenwood, Susq. Co., Pa.

FARM FOR SALE OR EXCHANGE.

My farm consisting of 152 acres, 1½ miles from town; about 100 acres in cultivation, the rest in pasture and hay land. Good two-story house of 7 rooms; fine bay window. Good barn 24x34, with basement; also lean-to, 14x24. Granary, 12x20, corn-crib, henhouse, and two good wells. I wish to go into the bee and poultry business, and will exchange for small farm near some large town in Iowa, eastern Nebraska, N. E. Kansas, or N. W. Missouri. Will sell at $30 per acre; $2500 down, balance five years' time. Address C. W. HALL, Marathon, Iowa.

WANTED.—To buy 150 colonies in L. hives, in the basswood region of Wisconsin, in May, 1893. Would pay $4.00 to $5.00 for good bees.
G. K. PENDLETON, Old Ripley, Bond Co., Ill.

Barnes' Foot-Power Machinery.



Read what J. I. PARENT, of CHARLTON, N. Y., says—"We cut with one of your Combined Machines last winter 50 chaff hives with 7-inch cap, 100 honey-racks, 500 broad frames, 2,000 honey-boxes, and a great deal of other work. This winter we have doubled the amount of bee-hives, etc., to make, and we expect to do it all with this saw. It will do all you say it will." Catalogue and Price List free. Address W. F. & JOHN BARNES, 545 Ruby St., Rockford, Ill.

When more convenient, orders for Barnes' Foot-Power Machinery may be sent to me. A. I. ROOT.
23tfd

FIVE-BANDED GOLDEN ITALIANS.

100 queens now ready at 75c each; 6 for $4.25; 3-banded, each, 60c; 6 for $3.00. Breeders on application. **CHAS. H. THIES, Steeleville, Ill.**

GOLDEN ITALIAN QUEENS. 60c each, or 6 for $3.00. Italians same price. None after Sept. 30th. ALBERT HINES, Independence, Iowa.
16-17d

Wants or Exchange Department.

Notices will be inserted under this head at one half our usual rates. All advertisements intended for this department must not exceed five lines, and you must SAY you want your adv't in this department, or we will not be responsible for errors. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, can not be inserted under this head For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements We can not be responsible for dissatisfaction arising from these "swaps.'

WANTED. To exchange Scotch Collie pups for any thing useful on farm or in bee-yard.
15tfdb N. A. KNAPP, Rochester, Lorain Co., O.

WANTED.—To exchange yellow Italian queens, and strawberry-plants cheap. Bubach, Jessie, Eureka, Haverlands, Warfield, Crescent, Lady Rusk, for poultry, or offers. 15tfdb
MRS. OLIVER COLE, Sherburne, Chen. Co., N. Y.

WANTED.—To exchange one high-grade Safety bicycle; one 49-inch Columbia light roadster bicycle; one Odell typewriter; tested Italian queens, for wax, honey, or offers. J. A. GREEN,
13tfdb Dayton, Ill.

WANTED.—To exchange a new hand-cart with springs, will carry 500 lbs., cost $14.00; would make an excellent honey-cart, for $8.00 worth of honey, or offers. DEAN FERRIS, Peekskill N. Y.

WANTED.—To exchange 25 new "Hunt" hives (chaff), about one half nailed together, balance in flat; 250 good straight brood or extracting combs, built from full sheets of foundation; 100 Hoffman frames, wired, and a quantity of other frames; also a honey-extractor, used but one season, and in first-class condition; also 10 Langstroth Portico hives, single wall, in good condition, for Safety wheel, or offers. Reasons for selling hives, etc., have sold all my bees.
GEO. N. CORNELL,
Lock Box 6. Northville, Mich.

WANTED.—Young men 16 to 25 years old, to correspond with the subscriber in regard to honorable employment in Chicago. Must be familiar with bee-keeping and maple-sugar making. Give references. *Do not come* to city unless *requested* to do so. I refer to editor of GLEANINGS.
Address HERMAN F. MOORE,
709 Tacoma Building, Chicago, Ill.

WANTED.—To exchange Italian bees on Langst'h frames, for Odell type writer, printing outfit, Safety wheel, Barnes foot-power saw, 6 and 10 in., second-hand foundation-machines, or bee-supplies.
CLARK A. MONTAGUE, Archie, Mich.

WANTED.—To exchange for Italian queens and bees in Dovetailed hives, 155 books, a combination Safety bicycle, 24-inch wheels, ball bearings, and accordion, all in fine condition.
L. A. WEBSTER, Strafford, Mo.

WANTED.—To exchange comb or extracted honey for grapes and peaches. How cheap can you deliver them at my depot?
N. E. DOANE, Breckenridge, Gratiot Co., Mich.

WANTED.—To exchange town lots in marvelous Marion, Queen city of the Indiana gas-belt, for honey; also 200 colonies of bees for small properties, building material, live stock, or offers.
17-18d B. T. BALDWIN, Marion, Ind.

WANTED.—I desire to work with a competent apiarist for a season or two with a view of learning the business, at fair wages.
P. T. HANNA, Epworth, Iowa.

HONEY COLUMN.

CITY MARKETS.

NEW YORK. *Honey.* Our market has not opened up as yet on new comb honey; and as supply and demand only regulate prices, we are unable just now to say exactly what new crop will rule at. We have a few lots on the way, and in your next issue will be able to give you exact quotations. Extracted is in good demand; Southern is arriving freely, and selling at 65@70c for common, and 70@75c per gal. for choice. Orange bloom, 7½@8. No extracted clover and basswood in market yet. *Beeswax*, in limited demand, at 26@27.

Aug. 25. HILDRETH BROS. & SEGELKEN,
28 & 30 West Broadway, New York.

NEW YORK.--*Honey.* Comb honey commences to attract attention, and we have had several inquiries from buyers, but are still without stock. Choice sections would sell at 13@14; 2-lbs. at 11@12. We have a good demand for all kinds of extracted except basswood and buckwheat. We quote: Florida mangrove and palmetto, good stock, 7@7½; good Southern, 70@75 per gal.; white clover, 7½@8.

Aug. 20. F. G. STROHMEYER & CO.,
New York City.

NEW YORK. -*Honey.*--No demand for comb honey yet. Some little demand for extracted honey. Market pretty well cleaned up of N. Y. State and Western honey; Southern honey arriving quite freely. *Beeswax*, firm at 26@27c. Clover and basswood extracted, 7½c; buckwheat, 5@5½c; Cal. ex., 7½@8c; Southern, 60@70c per gal.

Aug. 20. CHAS. ISRAEL & BRO.,
110 Hudson St., New York.

ALBANY.—*Honey.*--No receipts of new comb honey yet, although some call for it, at 15@16 for light, 13@14 for medium; 12@13 for dark. Good demand for extracted honey at 7@9c. *Beeswax*, steady, 26@30, according to style and color. Consignments solicited.

H. R. WRIGHT,
Aug. 29. Albany, N. Y.

ALBANY. *Honey.*—We have received three consignments of new comb honey up to date, and made one sale of No. 2 clover, at 15c. Have received no new extracted as yet, and are entirely out of stock.

Aug. 23. CHAS. MCCULLOCH & CO.,
393, 395, 397 Broadway, Albany, N. Y.

CHICAGO.—*Honey.*—We are now having inquiries for white 1-lb. section comb honey, and quote market 16c on best grade; amber, 14. There is a good demand for extracted, and we can sell all our receipts promptly on arrival at 7@8

Aug. 20. S. T. FISH & CO.

CHICAGO.—*Honey.*—White comb honey, crop of 1892, sells at 15@16 for best grade. Very little dark comb is being sold, at prices ranging from 10@13. Extracted is steady at 6@7@8, as to kind, quality, and flavor. *Beeswax*, 25c; market is good generally.

R. A. BURNETT,
Aug. 18. 161 So. Water St., Chicago, Ill.

MILWAUKEE.—*Honey.*—As yet there have been no receipts of new crop section honey in this market. Extracted in good demand, with small supply; the old nearly all gone, and not much new arriving. Can quote: White 1-lb. sections, choice, 16@17; fair to good, 1-lb. sections, 14@15. Extracted, white, in bbls. and kegs, 6@7. *Beeswax*, 25@26.

Aug. 22 A. V. BISHOP,
Milwaukee, Wis.

CINCINNATI.—*Honey.*—Demand is very good for extracted honey, and is in excess of arrivals. It brings 5@8 on arrival. Comb honey is of slow demand, and prices are nominal at 12@16 for best white in the jobbing way. *Beeswax*, is in fair demand at 23@25 for good to choice yellow on arrival.

CHAS. F. MUTH & SON,
Aug. 20. Cincinnati, O.

MINNEAPOLIS.—*Honey.*—We are receiving small lots of new fancy, paying 16c for the best. Demand yet is very light, only occasional calls.

Aug. 22. J. A. SHEA & CO.,
Minneapolis, Minn.

PHILADELPHIA.—*Honey.*—Some good-sized lots of Southern and New York State, No. 1 white, have come in, which we have sold at 15@17c. Buyers are coming into the market now. We quote No. 1 fancy white, 17@19c; No. 1 white, 15@16c; No. 2 white, 14@16c; buckwheat, 12@14c; extracted, 7¼@8c.

E. J. WALKER,
Aug. 23. 31 So. Water St., Philadelphia.

KANSAS CITY.—*Honey.*—Supply light, both comb and extracted, demand good. Fancy 1-lb. white, 16c; dark, 12; extracted white, 7@7½; dark, 5½@6.

Aug. 20. HAMBLIN & BEARSS,
514 Walnut St., Kansas City, Mo.

KANSAS CITY.—*Honey.*—Receipts of comb honey fair; demand fair. We quote: No. 1 white 1-lb. comb, 15@16; No. 2 white, 1-lb., 13@14; No. 1 amber, 1-lb., 14@15; No. 2, 10@12. Extracted, white, 7@7½; amber, 5@6. *Beeswax*, 20@25.

Aug. 24. CLEMONS-MASON COM. CO.,
Kansas City, Mo.

ST. LOUIS.—*Honey.*—Good demand for extracted at 5½@5⅝; for comb, 6½@7. No demand for comb, except white clover. *Beeswax*, prime, 24½@26c.

Aug. 20. D. G. TUTT GRO. CO.,
St. Louis, Mo.

ST. LOUIS.—*Honey.*—We quote: Choice white-clover comb, 14@15; fair, 10@13; broken and dark, 4@8; extracted, choice white-clover in cans, 7@7½; in barrels, 6; Southern strained, 4½ for dark; 5½ for choice. *Beeswax*, prime, 25.

Aug. 20. W. B. WESTCOTT & CO.,
St. Louis, Mo.

BOSTON.—*Honey.*—Demand for honey is very light. We have a very light supply on hand. From present reports crop is light throughout New England. No change in prices.

Aug. 20. BLAKE & RIPLEY, Boston, Mass.

DETROIT. — *Honey.* — Honey in better demand. Comb selling at 14@16. Extracted, 7@8.

Beeswax, 24@25. M. H. HUNT,
Aug. 23. Bell Branch, Mich.

WANTED.—50,000 lbs. of choice white comb honey.
Address BYRON WALKER,
17tfdb Evart, Mich., or Wyalusing, Wis.

WANTED—5000 lbs. extracted honey, basswood and white clover. Address E. PETERMAN, Waldo, Wis.
17-18d

FOR SALE.—Choice white-clover honey, in 60-lb. cans (net), at $5.10 per can; two cans, $10.00.
OLIVER FOSTER, Mt. Foster, Linn Co., Iowa.

Oregon Bee-Men. Send us your name and address. We want to correspond with you concerning honey. We are ready to make outright purchases of both comb and extracted honey in any quantity. If you do not care to sell, we will handle for your account. All we want is to get plenty of Oregon honey; if possible, we want to handle the entire crop. We are satisfied the result would be mutually advantageous. 16-17d

LEVY, SPIEGL & CO.,
113-115 Front St., Portland, Ore.

ESTABLISHED 1876.

S. T. FISH & CO.,
COMMISSION MERCHANTS.
DRIED FRUIT, HONEY, AND FARM PRODUCE,
189 South Water St., Chicago.

We make a specialty of our Honey Department, and ask for your consignments and correspondence. Reference, any bee-paper. 17-24db

ALL who wish my Restrictor books should address C. W. Dayton, Berthoud, Col., and not Clinton, Wis. The first edition is all gone, but I will print another edition as soon as the honey harvest is over, and mail one to all appplicants.
C. W. DAYTON, Berthoud, Larimer Co., Colo.

In writing advertisers please mention this paper.

The Bee-Keepers' REVIEW For 1892 and a Fine, Young, Laying Italian **QUEEN** for $1.50. The Review Alone, $1.00. The Queen Alone, 75 Cts. For $1.75, the Review, the Queen, and the 50 ct. Book, "Advanced Bee Culture," will be sent. W. Z. Hutchinson, Flint, Mich.

P. S.—If not acquainted with the Review. send ten cents for three late but different issues.

PURE ITALIAN QUEENS.

Untested, 70c each; 3 for $1.75; 6 or more, 50c each. Tested queens, $1.00 each. 14tfdb

D. G. EDMISTON, Adrian, Lenawee Co., Mich.

FOR SALE.

Tested Italian queen, 60c; untested Italian queen, 50c. Italian bees, in 10-frame hive, $4.00. Address 15-16-17d

Otto Kleinow, 150 Military Ave., Detroit, Mich.

SAVE MONEY.—Send to J. P. H. Brown, Augusta, Georgia, for his price list of supplies. Hives and foundation at wholesale rates. 4tfdb

BEE SUPPLIES RETAIL —AND— WHOLESALE.

Everything used in the **Apiary.** Greatest variety and **largest** stock in the West. New catalog, **54** illustrated pages, free to bee-keepers. **E. KRETCHMER, RED OAK, IOWA.**

Please mention this paper. 2tfdb

QUIGLEY'S GOLDEN QUEENS.

Are large, beautiful, and prolific. The bees are industrious, gentle, and hardy. Warranted purely mated, each, $1.00; 6 for $5.00. Untested, each, 70c; 3 for $2.00. Satisfaction and safe arrival guaranteed. Circular free.

14tfdb E. F. QUIGLEY, Unionville, Mo.

EXTRA FINE QUEENS.

Now is the time to introduce a strain of Italians that will reap you large harvests even in poor seasons. Send a trial order and be convinced. Queens warranted purely mated, each, 80c; six, $4.00; doz., $7.00. Order now; pay on arrival. Safe arrival and satisfaction guaranteed. 14tfdb *F. B. YOCKEY, North Washington, West'd Co., Pa.*

Golden Honey Queens.

Queens in Sept., untested, 65c; half doz., $3.00; tested, $1.00; one year old, 85c; select tested, $2.00; extra select, $4.00; the very best, $7.00; imported, $4.00.

Leininger Bros., Ft. Jennings, Ohio.

DR. J. W. CRENSHAW,
Versailles, - Kentucky,
Offers for Sale

Untested Italian Queens at $1.00 each through May and June; after, 75c each. Safe arrival guaranteed. Queens raised only from Imported mother. Drones only from selected and tested mothers.

Also CELERY PLANTS from July to September, at $2.00 per M. 7-18db

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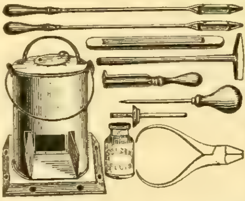
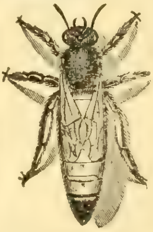


OATMAN'S
SOLDERING AND REPAIR KIT

Consists of fire-pot, soldering irons, solder, and soldering-fluid, with tools compl'te as shown in cut, with directions for soldering different metals, and how to keep your soldering-irons in shape. Whole kit, boxed, 12 lbs. Shipped on receipt of $2.00. Agents wanted.

O. & L. OATMAN,
8-7db **Medina, Ohio.**

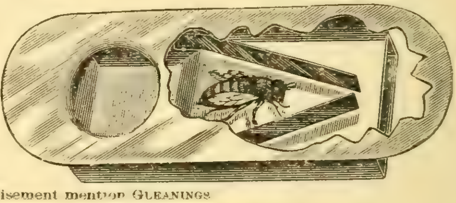


WESTERN BEE-KEEPERS' SUPPLY HOUSE.

ROOT'S GOODS can be had at Des Moines, Iowa, at ROOT'S PRICES. The largest supply business in the West. Established 1885. Dovetailed Hives, Sections, Foundation, Extractors, Smokers, Veils, Crates, Feeders, Clover Seeds, etc. Imported Italian Queens. Queens and Bees. Sample copy of our Bee Journal, "THE WESTERN BEE-KEEPER," and LATEST CATALOGUE mailed FREE to Bee-keepers.

JOSEPH NYSEWANDER,
Des Moines, Iowa.

Porter's Spring Bee-Escape.



We guarantee it to be the best escape known, and far superior to all others. If, on trial of from one to a dozen, you do not find them so, or if they do not prove satisfactory in every way, return them by mail within 90 days after receipt, and we will refund your money.

PRICES:—Each, by mail, postpaid, with full directions, 20c; per dozen, $2.25. Send for circular and testimonials. Supply dealers, send for wholesale prices.

10tfdb ***R. & E. C. PORTER, LEWISTOWN, ILL.***

☞ In responding to this advertisement mention Gleanings.

The Oldest, Largest, Best and Only Weekly Bee-Paper in America. Sample Copy Free.

—: 32 pages—$1.00 a Year :—

The American Bee Journal,

Address **GEORGE W. YORK & CO.,**
✲ 199 Randolph St., - CHICAGO, ILLS.

From September 1st, 1892, to January 1st, 1893—4 months only 25c.
From September 1st, 1892, to January 1st, 1894—16 months—$1.15.
To New Subscribers.

GLEANINGS IN BEE CULTURE
A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS.
ILLUSTRATED SEMI-MONTHLY
PUBLISHED BY A. I. ROOT.
$1.00 PER YEAR MEDINA OHIO

Vol. XX. SEPT. 1, 1892. No. 17.

STRAY STRAWS

FROM DR. C. C. MILLER.

My honey is light, so is my crop.

Light supers make a light pocket-book, but they don't hinder a light heart.

Honey granulates sooner when extracted than when left in the comb. It's the shaking that does it.

The Review *is* a review nowadays, and it's no skim-milk affair either. Gives good cream. Glad it's gone back to the "special topic" plan.

What a season! White clover abundant, but supers have come come off nearly empty; and but for the baits most of them would be entirely so.

The fecundity of the queen, C. Dadant thinks, commences generally to diminish only at the end of the third year, and sometimes not till after the fourth.

Do you like fun? Just put a Larrabee escape on top of a pile of supers taken off the hives, and see what fun it is to see the bees zigzag their way out.

Swarming troubled less than usual this year in the usual season, but seemed to keep up straight along, and get worse in August, with no promise of stopping yet.

"I have spent three years in carefully experimenting with spring packing with outer cases, and I now declare emphatically that with me it does not pay."—*B. Taylor, in Review.*

Transferring—M. de Layens' plan. Shake out the bees by bumping the hive on the ground several times, mouth down, then place the new hive over the cluster and let the bees run into it.

I've got a queen of those big Florida bees. If she lives through the winter, her bees can have the red clover all to themselves next year, and then I'll be sure of a crop from one colony.

Punic bees have favorable reports from two men in *A. B. J.* Demaree, in *Guide*, says the little black imps are the most unmanageable he ever tried to handle, and he had to break them up.

Conduite du Rucher is a book you ought to have if you read French. It's the book that last Gleanings noticed as "Management of the Apiary." Main part of the book gives work of apiary according to season. It's good.

A standard as to the weight of a section is being urged by some. A standard size of section is desirable and possible, but a standard weight—well, whoever has succeeded in getting the bees to put the right weight in every section, let him rise and so state.

Foundation-rolls, when badly stuck up with wax, E. S. Brooks says, you should not pick much, but just take a cotton cloth, folded to proper thickness, run it through the machine, and see how nicely it does the work.

White clover is reported by the *B. B. J.* as in full bloom July 30, with a prospect of ten days' continuance. "Moreover," it says, "the bees are working on it vigorously, a thing quite unprecedented in all our former experience."

Asphalt felt for quilts is recommended by C. N. Abbott, former editor of *B. B. J.*, as a preventive of foul brood. It's not the common roofing felt, "has no stringy, textile fabric about it, and cuts something like vulcanite."

I've some hopes that bees may yet fill up for winter. Aug. 20 they seem to be working harder than at any previous date. Clover is still in bloom, and they are doing a little on that, as also on buckwheat, but their chief work is probably on cucumbers. I'll be deeply grateful if fall feeding can be omitted.

Too much smoke used on bees is thus figured on by C. W. Dayton, in *Review.* If smoked till all bees are subdued and retreat, work is stopped for at least an hour. If a hive is handled every fifteen minutes, that means four colonies kept idle all day—a matter of some thirty pounds of honey in a good basswood flow.

The Hill smoker is called by E. R. Root "cold-blast." The *Review* gives a picture of "Hill's cold-blast smoker" illustrating an article written by A. G. Hill; but the *Guide* says it's not a cold-blast smoker, and that "the whole cold-blast principle is false and a fraud." What is a cold-blast, anyway, and who got up the principle?

Emma was smoking bees out of supers, and every little while she emptied her smoker; and, leaving a few coals, started it afresh. "What's that for?" said I. "Because I don't want fire," said she, "I want smoke. As soon as the wood burns into coals it makes a hot fire, but it doesn't make smoke like fresh wood." And she did make smoke—the smokiest kind of smoke.

M. de Layens excited my envy by reporting his management requiring only two visits in a year to each apiary. Chas. Dadant, in the *Revue*, shows that, although he makes nine times as many annual visits, yet the actual number of days' work is 10 per cent less than the Layens plan requires. Then he goes to work and shows that, in a number of respects, the Layens plan is nowhere as compared with that of the American Frenchman.

T. F. Bingham, in the *Review*, enters a protest, and a proper protest, against inventors losing the credit of their inventions. Some little change is made in an article, and the changer's name attached to it, while the real inventor is not recognized. Still, it would be bungling to have names always attached. Langstroth is the inventor of movable hives, and Reese of bee-escapes; but it's shorter to say Porter and Larrabee and Dibbern and the others, than to say Porter-Reese, etc.

THAT SELF-HIVER. You remember previous history. July 28, swarm caught in self-hiver; queen got out of trap, back in hiver; July 30, all moved back into hive; Aug. 5, old queen killed, leaving eggs, brood, queen-cells, and one queen hatched. Well, the cells were, one after another, torn down, all gone by Aug. 8. Aug. 16 I found the young queen in the hiver, not in the trap, so I put her back in hive and took away trap. This morning, Aug. 20, she is laying. Perfection self-hiver a success.

COBS AND KERNELS.

ANOTHER INSTALLMENT BY F. GREINER.

What Mr. Doolittle says on p. 547, on the subject of "why some gather more honey than others," confirms the position I took in my "Cobs and Kernels" in a former issue of GLEANINGS. Perhaps a little more on that subject might be said. We have so often been taught to keep our colonies always strong, particularly to get them so in the spring, and, if necessary, stimulate them by feeding or otherwise, that beginners are apt to follow such teachings only to find, many times, that their neighbors' bees, being managed on the let-alone plan, would do as well as theirs, if not better. Success depends upon whether the main honey-flow comes early or late. If late, I have noticed that even such colonies as come out quite weak in the spring would build up fast enough to be ready for the basswood flow, and become most profitable colonies. Some years ago we had much trouble with weak colonies in the spring—robbing being the worst. We used to content ourselves by saying, "They will make the honey if we can only get them through;" and the fact was, they did make the honey. It seemed a little strange that this should be so; but the solution of the problem was, no useless amount of bees was produced: the vitality of the queens was saved and prolonged, and they themselves did the best business at the right time, when the produced bees became producers and not consumers. In connection with the above I want to say that we must not leave the young bees, not yet sixteen days old, out of our calculation, for they are the comb-builders, nurses, etc.—very essential to have.

More losses of queens have occurred among my bees during the past winter and spring months than ever before. Perhaps the reason is this: 1. I have paid little attention to renewing queens. Through carelessness, or because I followed the advice of prominent bee-keepers, I left my bees to take care of this matter. 2. It so happened that, for three successive years, we have had but little swarming, consequently not many queens were reared, leaving quite a good many colonies with old queens. I have now come to the conclusion that it will be a safer way to substitute young queens for all three-year-old ones whenever practicable; and it appears to me that the period of swarming is a favorable time for this work. Plenty of queens can be on hand then; and when a swarm is being hived, a young vigorous queen from a nucleus can at once be substituted without the bees knowing the difference. Should a swarm come out with a virgin queen, another virgin queen of superior blood may be substituted in the same way.

Many bee-keepers provide the lids of their chaff and Langstroth hives with inch holes in the gable ends, for ventilation as well as for the exit of the bees that may accidentally get imprisoned under them. It has been very annoying to me to have wasps enter and build nests in these rooms above the brood-chambers; also yellow-jackets, spiders, etc. To avoid all this trouble, others as well as myself have placed little cones over these holes with good success; but these, projecting as they did, soon became jammed, and got out of order. I now use a flat pear-shaped escape, which any one can make from a piece of wire cloth. They answer the purpose first rate, and do not get out of order.

A few colonies fitted up with glassed sections often afford much pleasure to show to visitors, and for making observations from hour to hour, from day to day. Four closed-top sections, clamped together by the simple device of a slightly curved piece of ¾-inch hoop iron, four inches longer than the width of the four sections, bent at right angles at each end 2 in., answer the purpose well. There is sufficient spring in the iron to hold glass and sections in place. Eight of these now four-pound boxes may be placed on top of a Langstroth hive.

The combs in the brood-chambers are usually spaced 1⅜ or 1½ inches from center to center. In my extracting supers I use seven combs to the foot. I am not sure, however, but that six would be better; for, the greater the thickness the less sealing has to be done, and the less uncapping by the apiarist when extracting. But can the bees as easily repair, clean out, refill, and ripen the honey in deep cells? is a question I know nothing about, and I should be glad to get some light on it.

In the last two years I have used a brood-frame with a top-bar ⅜x1⅛ inches, using eight frames to the foot. These frames are free from burr and brace combs. It is a pleasure to take the full supers from hives with such frames.

In removing filled supers, the bee-escapes again prove to be a great help. Nearly all the different escapes work well at this time of the year. I find the new Dibbern mica-spring escape to be another valuable acquisition.

Several queens have found their way through the excluders into the extracting supers, and set up housekeeping therein in good earnest. I did not like that. Root's excluding metal seems to be no good for queen-fertilizing chambers over other colonies. Only two queens became fertile in a large number. I will try the Chicago zinc another year, and report.

The telephone connecting my shop with the house is a good swarm-indicator. When a swarm issues from a hive near the wire, many bees strike it (they do not seem to be aware of it). In the house and shop it sounds like a shooting-affair in the distance, and we know immediately what's up. I am satisfied that, if I had two or three wires stretched over the yard (of 125 colonies) at proper distances, every swarm issuing would be reported as it makes its appearance.

The experiment of Schönfeld, in Germany, seems to prove that the ripening of honey, or the change from nectar to honey, is a process of evaporation only. Dzierzon, however, thinks that this condensing process is performed by the direct action of the bees. He says: "It seems we can reasonably suppose, that the honey-stomach of the bee is like a filter, allowing the water to pass through its walls. I believe nectar would much sooner turn sour than thicken to the consistency of honey inside of the hive." Schönfeld, in his experiment, formed a colony of young bees only, which he knew would not and did not go out in search of food. To this colony he introduced a comb filled with sugar syrup, but inclosed in wire cloth. Then he fed this colony the same kind of thin syrup. At the end of seven days the fed and stored syrup was compared with the screen-inclosed syrup, and only an insignificant difference was ascertained in favor of the first named. The syrup in the inclosed comb had not soured, and was so nearly of the same consistency that v. Planta, who made the analysis, thinks it questionable whether, in this process of concentration, the organization of the bee plays any part at all.

According to an article by F. Kuehne, of Germany, appearing in No. 5 of the *Bienenzeitung*, the bee has two sets of eyes—two conspicuous and complicated ones at the sides of the head, for use near by, and three small eyes (in their relative position forming a triangle) in the center of the head—these to see at a distance.

A certain German writer announces the discovery that the laying of the queen is periodical, with resting-spells of three or four days intervening. We have not noticed any such thing; and the best of German authorities ridicule and disprove the assertion.

Experiments made years ago in Germany have shown that drones can not withstand as strong a current of electricity as workers. Would it not be simpler and cheaper, by means of an electrical battery constructed in such a manner that the strength of the current could be changed *ad libitum*, to kill all drones of a colony instantly, than to use drone-traps for the purpose?

The mother colonies having swarmed late in the season can not be counted on for storing any more in sections; but one can make good use of such by dividing, allowing each to raise its own queen. If combs or foundation-filled frames can be given, they will build up and store sufficient honey for winter, providing there is a flow from buckwheat. I always increase my stock this way to some extent.

The best time to put foundation starters into sections is in the morning, before you need them. The best time to give sections to your colonies is the minute they are ready for them and honey is coming in; but the best time to make up your sections is in the winter, when there is plenty of spare time. I use section-holders or broad frames, and handle the sections, after they are made up, in fours.

We can rejoice over a fair honey season in this location—the first one in a number of years.

Naples, N. Y., Aug. 8. F. GREINER.

FROM THE HOLY LAND.

SOME INTERESTING ITEMS FROM THE LAND OF ELIJAH, AHAB, AND JONAH.

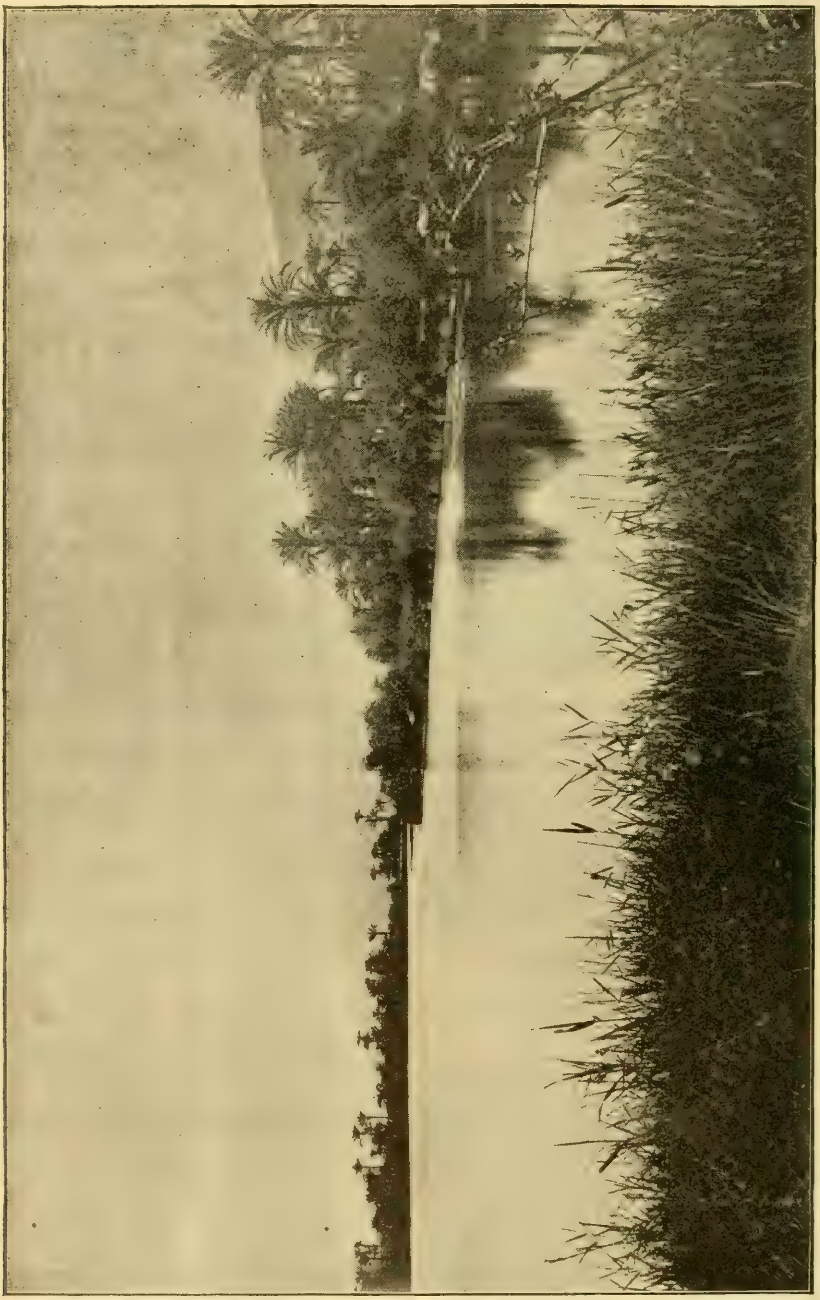
Dear Mr. Editor:—"Bahr in-Jadeed" means "New Sea," an old Turkish steamer on board of which I took my family over the old Mediterranean. The agent made us hurry on board amidst a tempestuous sea, the steamer lying half a mile off the shore. He said it would leave at three o'clock in the afternoon. Perhaps he didn't mean to say it was on that selfsame afternoon; but, be that as it may, we had the pleasure of being in sight of Jaffa for the next twenty-four hours. Finally we left the very rough harbor. The passengers were all kinds of Orientals—Palestine recruits, Armenians, Turks, Jews, and some murderers with heavy chains around their waists and feet, coming from Asia Minor to the prison of Acre, whither our steamer was going. The criminals offered different articles for sale; among others a good revolver and a Damascene yatagan. He took out the weapon, and, with the motion of stabbing, showed the passengers how well it would work (if he were able to). Just at sunset the prisoners and ourselves, the only passengers for Acre, were landed, and we were glad to step ashore again. This fortress, defended by bastions and ditches, has been famous for its sieges from time immemorial. The Crusaders were there, and, at the end of the last century, it was the place where Napoleon Bonaparte met the resistance of Djezzar Pasha, assisted by Sir Sidney Smith. It is still considered to be an impregnable place; but its fortification toward the sea could not resist the slightest attack; but not so the landward buildings. This is a great cereal market; and the Bedouins of Bashan, the Hauran, and all Galilee, come here with their produce, whence it is shipped to Europe and Egypt.

We started for Haifa, about eight miles away, at the foot of Mount Carmel. Hundreds of sea-gulls were busy gathering the grain with which the seashore all along the eight miles was literally covered. A ship loaded with wheat was ready to start for Egypt a few weeks ago, and suddenly a tempest arose and drove it against the rocks. We now crossed the mouth of the celebrated river Belus, on the shores of which the Phœnicians are said to have invented glass by doing their cooking in the sand. Soon after this we crossed that "ancient river, the river Kishon," of Judges 5: 21, spoken of by Deborah in her song, and where the prophets of Baal were slaughtered—see I. Kings 18: 40. I send you a photograph of the mouth of the river. It is stagnant water. The banks are covered with rushes, and in the background are palm-trees. The mountain back of it is old Carmel.

We soon came through the town and took our lodgings with the German colony, established here in 1869 by Wurttemberg farmers, under the auspices of two leaders whose aim was to take them out of the corrupt evangelical church and await the kingdom of God in Palestine. They have been struggling very hard for their living during the past twenty years, and many of them were wholly broken up, both in body and mind. They have changed and rechanged ideas, so that, from the one original sect of "Templars," as they were to rebuild the temple spiritually, they are now divided into four divisions or denominations.

Bee-keeping, new and old, is also flourishing to some extent, from the native clay cylinder to the bar-frame hive in different stages of perfection. One man has about twenty box hives. He cuts out the honey once a year, and never looks after them. He has no time, because he has a farm to attend to; and, besides this, Haifa isn't the place to keep bees. A near neighbor, a little more "enlightened," has a number of home-made German hives with movable combs stuck fast in the hives. He has also an extractor, and extracts honey once or twice a year when he is not hard pressed making shoes. His bees gather honey from the flowers "they like best"—he doesn't know and doesn't care from which. The honey has a fine aromatic taste. I supposed it to be sage honey, with which Carmel abounds. Another man, the schoolmaster, Mr. Lange, keeps some thirty well-made hives on Rothschütz's system. He has an extractor in fine order, on account of its being used very seldom, as his lessons and amateur photographing leave him but little time to look for his bees. "Besides," said he, "this is not the proper place for taking honey," though he has taken a good deal of it in past years.

The last but not least (in knowledge) is an English bee-keeper, a Mr. Gee, who came out here for the late Mr. Oliphant, M. P., who lived here many years, and brought with him a number of empty bee-hives, and worked them with success at Dalia, a Druse village in Carmel. This man is up with the times, and was glad to have a bee-chat in English. He had saved up all the back volumes of the *British Bee Journal*, and followed all innovations, till the death of Mr. Oliphant, which suddenly cut him short, without any means for continuing. The heirs of said gentleman did away with every thing pertaining to bees. This man has only a few standard hives left. The other hives and fixtures have been given away to one of my pupils in the Jewish settlement of Trichron Jacob, founded in Carmel by Jewish refugees, under the auspices of Rothschild, in 1883. That man came down to Jaffa, learned the art of apiculture in three "full lessons," went back and established an apiary, and has been in doubt ever since the four years as to where he shall put his


MOUTH OF THE KISHON RIVER, PALESTINE, WITH MOUNT CARMEL IN THE DISTANCE.

swarms when they come out. He occasionally writes to ask me when to put on the supers, and invariably receives the answer, "When the bees have filled the hive and want more room."

A stroll about Carmel showed me a wonderful variety of thickly strewn honey-plants, miles and miles in extent — sage, majoram, lavender; we also found a "Wad-el-Nahel," the Bee Valley, where, in times past, bees abounded in the rocks, but they are not now to be found. This place, the whole Carmel range, is more or less covered with uncultivated honey-plants, and would give honey to thousands and thousands of colonies of bees, now all going to waste. A few villages only are now to be found; and the "vineyard of God," as Carm-El means, is terribly neglected. A dense thicket affords shelter to birds of all classes, as well as to the wild beasts. Some panthers among them are still reigning as feline kings.

Mr. Keller, the German vice-consul for Haifa, has built some houses on the top of Mount Carmel, and I succeeded in showing him the many honey-plants going to waste right before his house, while, with a small sum invested in bees, he could have ample returns. I offered to teach his son, and have had him for the past few months, instructing him in the "mysteries of bee-keeping." I managed to give him an apiary, our Langstroth system, with American utensils from the Home of the Honey-bees, and hope he's going to thrive, though he depends very much on the bees and his workmen to do the work for him. I have sown the seed, and it will in time spring up.

At the point of Carmel, on the seashore, is a new cloister of veiled French nuns who came here six months ago. The "father confessor" brought with him from France a bee-hive. The father was no good bee-father, for, after having brought them from France, by way of Jaffa, being about thirty days shut in, he put them temporarily in the garden of the Carmelite monks, two miles away, without opening, for fear of losing his bees if he should wish to move them again, thus leaving them another ten days cloistered up. Happily this was in December; but still, when he finally placed them in the cloister garden, and opened them, he found two-thirds dead. The wax-moth had eaten a good deal of the comb; but the queen was still living. It is now a four-frame nucleus of brown bees.

An Italian bee-keeper, with 60 clay-cylinder hives, lives in the town of Haifa, and has a fair revenue, comparatively, on his "let-'em-alone" system. The hornets trouble Mr. Gabrielli's bees most. He showed me the finest specimen of wax I had seen, selling at about 20 cents a pound. An Arab bee-keeper of the country one day brought him an enormous cake of yellow beeswax weighing about 60 lbs., which he purchased at 10 cents per lb., bringing it home. The cake turned out to be a spring. How the man managed to put about 35 lbs. of water into the cake is what made me wonder. "Si non e véro, e bene trovato!" The wax here in our locality has risen from about 15 to 30 cents per lb., accounted for by the numbers of pilgrims to Jerusalem, who all buy genuine wax candles from the many merchants about the holy city. Having had a good deal of foundation comb to make this year, the pilgrims visiting Palestine were not very interesting to me.

Ph. J. Baldensperger.

Jaffa, Syria, July 9.

[Many thanks, friend B., for the beautiful view and description of the real, genuine Mount Carmel. But you don't tell us whether or not they are able to find at this date the spot where Elijah performed the wonderful miracle of calling fire down from heaven. Very likely, however, you can find the peak where his servant ascended and looked off toward the sea; and then perhaps one might guess at the path where Elijah ran down the mountain before the chariot of Ahab. And is it really true that our bee-hives and utensils have made their way to old Mount Carmel, so celebrated in Bible history? May success attend our young friend who is working for you.] A. I. R.

THE DIFFERENCE IN BEE-KEEPING BETWEEN THE NORTH AND SOUTH.

PROPOLIS IN THE SOUTH, ETC.

I often hear the wish expressed by bee-keepers, that we had some distinctively Southern bee-literature — a book or a journal devoted mainly to our warm climate. The bee is the same in all lands; but the environment, the temperature, the seasons, and the flora here, demand an entirely different system of treatment from that prevailing in the latitude of Gleanings and the lesser lights of apiculture. The great question of wintering, with its train of appurtenances and methods, does not touch us: It is more a question of summering. The times, too, are out of joint. While you, in February and March, are resting from your labors, and your bees are down cellar, or chaffed, cushioned, sealed, ventilated, frozen, or starved, as the case may be, we are hustling around with swarming fever and surplus cases; and when you and your bees are out of winter limbo, and at work in leafy flowery June, we are at the beginning of a three months' term of enforced idleness. So the little we do get that is practical comes six months after date, and is useless, and beginners have to depend mainly on that somewhat stern and expensive but thorough teacher—experience.

The great obstacle in the way of a successful bee-journal adapted to Florida, Southern California, and Southern Texas, is the limited area over which it would be useful; and even Florida and California methods and seasons differ widely. But a book or manual might pay; and I hope we have somewhere on our peninsula a dormant "Root" or "Cook" who will wake up and do the deed. Perhaps it is early yet for any one to write a thorough work on bee-keeping in Florida.

Is it not one of the strange things in our history, that this State, wherein was located the first colony from the old world; and Southern California, visited by Cortez, both garden-spots in our vast territory, should be the last to have their wonderful resources developed? Florida, the oldest State in our history, is to-day the newest, the youngest. Another want felt by bee-keepers as well as other students of nature is a botany. I have made careful inquiry for one; but, so far as I have been able to learn, there is no work in which the flora peculiar to this State is included with any degree of thoroughness, though the most of the plants the bees work on are classified.

In this part of Florida there is nothing for the bees to work on during June, July, and August; and if they had to gather their daily food they would stand about as good a chance of surviving the summer as yours would the winter months under like conditions. Mine have gathered no honey for five or six weeks; yet each colony has two or more frames of brood in all stages, and their stores are diminishing so rapidly that it will not be long until they will have to be fed. They fly out every morning after propolis and pollen. The first, they stick over every thing; and some of the old-style frames are a sight. In some cases the rabbets are full of what looks and tastes like pure pine pitch. I will send you a sample. In the improved Hoffman frames they get only a little line where the frames touch—none in the rabbets. Devoted as they seem to be to this plastering industry, it takes but the merest hint of honey to make them drop their tools and go to robbing; and when they are started they beat the record for persistence. About Sept. 1st the partridge pea will give them the first of the fall flow; and, a little later on, a wild flower, which I have been unable to name or identify, gives the bulk of the crop.

When I first saw bees at work on the partridge pea I was not a little puzzled to know where the honey came from. They do not pay any attention to the yellow flower, but get the nectar from extra floral glands. There is one at the base of each leaf-stalk, about a line in diameter—the globule of honey in plain view on its surface. Almost any of our local bee-keepers will tell you that the fall flow is in good part from goldenrod; and I see that flower mentioned by several in friend Brown's report. But I am still skeptical. The plant, in different varieties, is all about us here, and I have watched it every hour in the day when bees were flying, and never yet have seen a honey-bee on it. I have also noticed the entire absence of flies and other insects, so common on it in the north.

With your permission I want to tell the readers of GLEANINGS a good thing in relation to the flat covers of the Dovetailed hive. I have tried the hive this year, and can see but one fault; viz., the covers *will* warp Now and then one will lie perfectly flat; but the most of them are "cantankerous," and I have to pile brick on diagonally opposite corners to make them robber-excluding. Well, if you are bothered the same way, when you order covers just ask friend Root to run them over a circular saw, cutting two-thirds of the way through the board, from the under side. Make three or four of the grooves, equal distances apart. When that cover is cleated it is flat to stay, and as strong as ever. One can even use the edge for a seat if he feels so disposed.

A TOBACCO-STORY WITH A MORAL.

I have been much interested in the Tobacco Column in GLEANINGS, and have been wondering if I do not deserve a smoker, for I have quit using tobacco. But as I quit about thirty years ago, and under rather sudden and peculiar circumstances, you may not think so. As the story might help some one who does not know how to influence his boys to let the weed alone, I will give it. I was a ten or twelve year old boy, when I one day found some "fine cut," kept by our hired man, in the stable. I knew I ought not to touch it, but I took a good big chew of it anyhow, just as I had often seen Abe do. It was sweet, mild tobacco, and tasted rather pleasant. My next sensation was also not unpleasant, a sort of light airy feeling about the head. My errand to the barn was to gather the eggs; and I now climbed up into the hen-house, got the eggs, and was preparing to descend the old ladder when sensation No. 3 announced itself, and I sat down to consider it. In a minute or two I became deathly sick, and faint and blind. I tried to go down the ladder, and fell headlong ten feet to the ground, for a wonder without breaking my neck. At about this time Mother Nature turned me as nearly inside out as possible, and then my own mother took in hand the sickest boy she ever nursed back to health and strength. The next morning my father and I had an interview—a painful one to him mentally and to me physically; and I promised to let tobacco alone, without even a smoker in view. As it relates to my moral and physical welfare, I now know that the punishment was one of the kindest acts he ever did. I yet honor and thank him for it. He believed and taught his children that the use of tobacco was purely evil in its tendency, and in a neighborhood where every farmer drew half his income from its culture, would never allow a stalk to grow on his land. He was a pioneer in the anti-tobacco crusade, for at that time its effects in dwarfing mind and body were not taught so thoroughly as now, and around us the habit was almost universal. Boys became habituated to its use, saturated with nicotine, before their teens were reached. Indeed, the habit is almost invariably formed in early boyhood, and the middle-aged votaries of the weed who have not at some time tried to get rid of their tyrant are scarce. And those who have succeeded in their effort are scarce too. Save the boys from the debasing habit while they are so easily influenced for good or evil. That is where work will give the biggest returns. E. J. BAIRD.

Orlando, Fla., July 26.

[Friend B., we realize what you say about a bee-book specially adapted to the Southern States, and such a book might be very convenient; but then, its sale would be, for a great part, restricted to the South. Now, inasmuch as the great bulk of the teachings of our books on bees are applicable to any locality, it hardly seems to me there would be demand enough to warrant such a work. Another thing, an intelligent reader would have no difficulty in modifying the general teachings to suit his climate and locality.] A. I. R.

BEE-MOTHS.

E. FRANCE THINKS THE ITALIANS ARE NO MORE PROOF AGAINST THEM THAN THE BLACK BEES.

I read in the bee-papers that the Italian bees are proof against the bee-moth, and that the black bees are not as good as the Italian in that respect. Now, the fact of the case is, I don't see any difference in the two races about keeping the moths out of their hives. We have some good Italians yet, and plenty of hybrids, a cross between Italians and blacks. Then we have Carniolans, and their crosses with blacks and Italians. Now, friends, I don't see any difference as far as moths are concerned. We have had some good tests with bee-worms this year. Bees died or dwindled out until there was not one left. Then the combs were exposed to the bee-moth. We always have more or less of such combs every spring. We usually manage to use them up in making new colonies by division. This year has been different from other years. The fore part of May we had some combs in almost all the yards; and as we expected to use them soon we left them in the hives, as we usually do. But we did not get a chance to use them; and the first thing we knew, the moth-worms had them used up. In some cases the wax was all eaten up, and nothing remained but webs, worms, and cocoons.

Now, mind, we use a quadruple hive that holds four colonies of bees. It is a fact, that in those hives that had one, two, and sometimes three divisions destroyed by the worms, in other parts of the hive there were one or more colonies of bees alive and in good order—no worms in their combs—just a loose honey-board over the top. In some cases the honey-board would be warped up enough to let a worm crawl through into the part that was occupied by the living bees. I did not see that it made any difference what kind of bees they were that kept the worms out. It was interesting to see how the bees would pounce on the worms when we pried up the honey-board. The hatred that the bees have for these worms is all that saves the bees from entire destruction. The bees *all* hate them. I don't see any difference between Italians, blacks, or Carniolans, as to that, for they will all take care of the moths if they have half a chance.

We had one case this year of three divisions in one hive, the combs all eaten up with the worms, and, after taking out the frames, there were enough worms in the three to fill a two-quart measure full of clean, wiggling, crawling worms. In the fourth division of the same hive there was a good colony of bees, and they were blacks—not a yellow mark on them. We had quite a talk over the case, and would willingly have given another colony of bees to have three or four of our great guns there to see for themselves that the despised blacks would protect themselves and fight their own way among the worms. We never had a colony of bees destroyed by the worms; but it is not uncommon to have more or less combs destroyed by worms.

HOW TO PREVENT BURR-COMBS.

Have such seasons as this, then burr-combs won't be any trouble. I have seen no burr-combs this year; neither have I seen a piece of comb as big as my hand, that was built this season. It is a splendid season to keep down increase—560 colonies and only one swarm, and that went back. No new hives to build next winter. We are ready for a good honey season if the winter doesn't kill the bees.

Platteville, Wis., Aug. 1. E. FRANCE.

[Your experience with the black bees and moth-worms seems to be at variance with all the rest of the bee-keeping world. We venture to say, that, if you had no black bees at all, certainly nothing nearer than hybrids, you would hardly know what moth-worms are in the hive. When we used to have black bees and Italians we had moth-worms; now that we have only Italians, the moths are *never* seen in our hives. Of course, if we leave combs exposed in buildings, or away from the bees, moth-worms do make havoc with them.

Regarding burr-combs, we had an unprecedentedly heavy honey-flow, and no burr-combs on the Hoffman or thick top-bars, and this is the third season that some of them have been in the hives. Our old thin and narrow top-bars were literally covered with burr-combs.]

WORLD'S FAIR.

THOSE LADY MANAGERS; THE APICULTURAL EXHIBITS, ETC.

Inclosed find copy of a letter I have received from the chairman of the Women's Board of Lady Managers on Bee Culture, World's Columbian. I wrote her to inquire what their duties would be, hoping they were to be more ornamental than useful. If there is a time for every thing, why would not this be a good time for bee-keepers to kick? What kind of a show are they going to have at Chicago, any way? Incompetent judges and "free whisky" won't make the first premium necessarily an article of merit. I have knowledge of a judge of sheep, as good as there is in the U. S.; but he is convivial; after meeting the boys a few times, and being "glad to see them," he can not tell a Cotswold ram from a billy goat. The Chicago committee can not tell the difference, to commence with. If there is any reason (of policy) why we should not bring this matter up, please let me hear from you. I mail you, with this, an Iowa State Fair premium list, and current issue of *Homestead*. W. C. FRAZIER.

Atlantic, Ia., July 23.

[The following is the letter referred to:]

W. C. Frazier:—Your letter of the 25th of June has been received and contents noted. As I understand the relation of the various committees from the Board of Lady Managers to exhibitors, it is twofold: First, to endeavor, before the opening of the exposition, to awaken interest and induce exhibitors to make a display of their wares, works, arts, etc.; and, second, in connection with the gentlemen commissioners, to pass judgment upon the relative merits of competitive exhibits during the time the exposition is opened. I can well realize that the bee-keepers would prefer that only those ladies should be upon the committee on "Bees and Bee Culture" who are practical apiarists; but if you will consider how the Board of Lady Managers was formed, you will see that it would be unreasonable to expect them to be specialists and experts. Mrs. Palmer, in making her appointments, was obliged to use the material she had. At the same time, I would say that a capacity to judge of results is not necessarily allied to the ability to create. The "Committee on Fine Arts," for instance, might well judge of the merits of pictures and statues without being able to paint the one or to chisel the other. I do not profess to be a skilled bee-keeper; but to the best of my powers I am informing myself on the subject, and hope to be able to do my duty when the time comes. I trust that you will send a fine exhibit to the fair, and that I shall have the pleasure of meeting you there.

MRS. CHARLES H. OLMSTEAD,
Chairman of Committee on Bee Culture
(Lady Manager for Georgia).

Savannah, Ga., July 1.

[Both letters above were forwarded to Dr. A. B. Mason, who replies:]

Friend Root:—Your favor, with a letter from W. C. Frazier, of Atlantic, Iowa, and one from Mrs. Chas. H. Olmstead, of Georgia, inclosed, has been received. I presume Mr. Frazier would not be far from right if he had said the duties of the lady managers on bee culture for the Columbian Exposition would be more ornamental than useful, and still they may be more useful than we imagine. We all know that the ladies in our homes are *the* ornaments we love, and we find them exceedingly lovable and useful ornaments too. If these lady managers at the exposition show their good sense by falling in line with the bee-keepers, and do their best to make our exhibit a grand success, we may well be glad they *are* ladies, if not bee-keepers.

I have no idea that the Board of Lady Managers, with the gentlemen commissioners, will have any thing to do with passing judgment on the relative merits of the exhibits. It is fair to presume that that will be done by competent judges, if not by experts.

Mr. W. I. Buchanan, Chief of the Department of Agriculture, has this whole matter in charge. By his invitation, Mr. Thos. G. Newman and myself have met him twice in his office in Chicago, to confer in the interest of the Apiarian Exhibit, and he seems anxious to aid us all he can.

Personally I do not like the glass cases that have been illustrated in the bee-journals, to show in. I should like to have Ohio have a space fifteen or twenty feet square to make her honey display in, and go to such height as the committee in charge might desire, and make one grand display of sweetness and beauty; and don't you think the lady managers would say, "Oh my! isn't that sweet"?

But then, I have to get back from "fancy" to facts, which are "stubborn things." It is not the intention of the Columbian Commissioners to try to show a large quantity of any thing, but to see how much of a variety of *the very best quality* of every thing can be placed on exhibition in the smallest space, quality and beauty, and not quantity, to count. Ohio, Michigan, New York, Illinois, Wisconsin, California, or any other State *might* occupy the whole space that is allotted to the bee-keepers; then where would the other States exhibit?

Knowing the design of the Commissioners, any one can at a glance see the propriety of limiting every exhibit as to the space it shall be permitted to occupy, and the height to which it may extend.

Mr. Frazier says, "If there is a time for every thing, why would not this be a good time for bee-keepers to kick?" I believe there is a time for every thing, but I don't believe the time for "bee-keepers to kick" has arrived. I don't see any thing to "kick" or to "kick for." If Mr. Frazier, and all other interested bee-keepers, instead of waiting to find something to kick, would take a little time in writing to Mr. Buchanan just what their views are, and what they would like to have done, it might give him new ideas, and be of material aid to him and our specialty; but to stand back and find fault and "kick," won't help one bit. But don't, for mercy's sake, flood him with long-winded letters that don't have a good sound suggestion in them. First, decide what you *want* if you know, and then "boil it down" into a few lines, if possible, and send it to him *at once*, or as soon as possible.

I am no more interested in this matter than any other bee-keeper who is desirous of doing his or her part toward making a creditable exhibit of our product. I can not speak authoritatively, but simply give my views as any one else might.

It is expected that every person furnishing honey or beeswax will have the same labeled, in accordance with the rules already published, so that *every package*, whether comb or extracted honey, or beeswax, will show *what* it is, *where* it came from, and *who* produced it. In your next issue I will try and say more as to *what* to do.

A. B. Mason.

Auburndale, O., Aug. 3.

FIVE-BANDED BEES.

A CRITICISM; CALLING THINGS BY THEIR RIGHT NAMES.

I have felt for a long time as if it were the privilege of the average bee-keepers of this country to know something more definite concerning the so-called five-banded Italian bees that are so much advertised at present. I have taken considerable pains to glean what information I could from those who have advertised them the past two years; but I consider the information that comes from practical honey-producers (which I am constantly receiving) of the most value to those who are interested in fancy bees. The first report I ever had concerning them was two years ago, from W. S. Vandruff, of Pennsylvania. He reported them as the poorest honey-gatherers, and bees that would not winter with any certainty, even in Pennsylvania. This was the first impression, and the first impression often goes a long way with many of us; so it was with me, and I considered the four-banded bees (as then called) as a worthless inbred strain, which I have good reasons to believe those that Mr. Vandruff described to me were.

During the season of 1891 several parties wrote me concerning the so-called five-banded bees, wishing me to try them. I at that time had resolved to make a fair trial of them before recommending them to those inquiring about them. I accordingly sent to Jacob T. Timpe for a select queen, Aug. 3, 1891; and late in October I received a fair-looking queen that he promised would produce four bands on "the scale" as he termed it. Well, this queen was wintered successfully, and this season I carefully compared them with my other bees, which were then all common three-banded Italians. The colony was strong in the spring, but did not build up as rapidly as did others; and, what was most noticeable, they would cease flying much earlier at night, and would not be seen flying at all during cloudy weather, when most bees were working freely on apple-bloom. They were as cross as Cyprians, and not a bee shows *any yellow* on the fourth segment. I gave her away, and the party I gave her to declare they are the poorest bees he ever saw.

But this is not a fair representation of the golden bees bred by our best breeders of to-day, as I have proved during the past few weeks in the midst of a good honey-flow for this locality. By a close comparison with the best three-banded Italians I can see very little difference in their prolificness, gentleness, or as honey-gatherers. I feel sure that they are equal to any bees I ever had, in this respect. But where the complaint comes now is mostly from those who expect to get bees from their queens that they get from these five-banded advertisements, that the workers will show five yellow bands, or, in other words, yellow on five segments; and I believe, right on this point, the breeders have made a mistake in calling them 5-banded. Let me explain, and then I think all will agree with me, especially those who have purchased queens and have seen their progeny.

Early in the spring I sent to nearly every breeder of five-banded bees for a sample of bees from the best queens, and at the same time I inquired for prices of breeding queens. The answer was the same in nearly every instance: "I can not send a queen that will produce over 50 per cent of five-banded bees like sample;" and I wish to have it distinctly understood, that not a single bee that I received from the many excellent breeders showed a particle of yellow below the fourth segment; and several of them wrote me that the young queens would not produce over 10 to 20 per cent of five-banded workers, the remainder three-banded. Now, I have always supposed the segments were the bands, as we have been in the habit of calling our Italians three-banded, and surely a part of three distinct segments on the abdomen are yellow. The golden variety have the segments solid yellow, with no black stripe at the extremity. I have two colonies whose drone progeny is yellow all over the abdomen, including the tip; but I might add that one of the queens produces not a bee showing over three bands. I feel sure that there is a mistake in calling them five-banded bees when it is difficult—yes, very difficult to get a queen that will produce *all* her working progeny showing yellow on the fourth segment. It is almost certain we shall not have bees yellow all over like the queen, in time; but I believe in calling things by their right name, and think it is time this matter were set right.

James Wood.

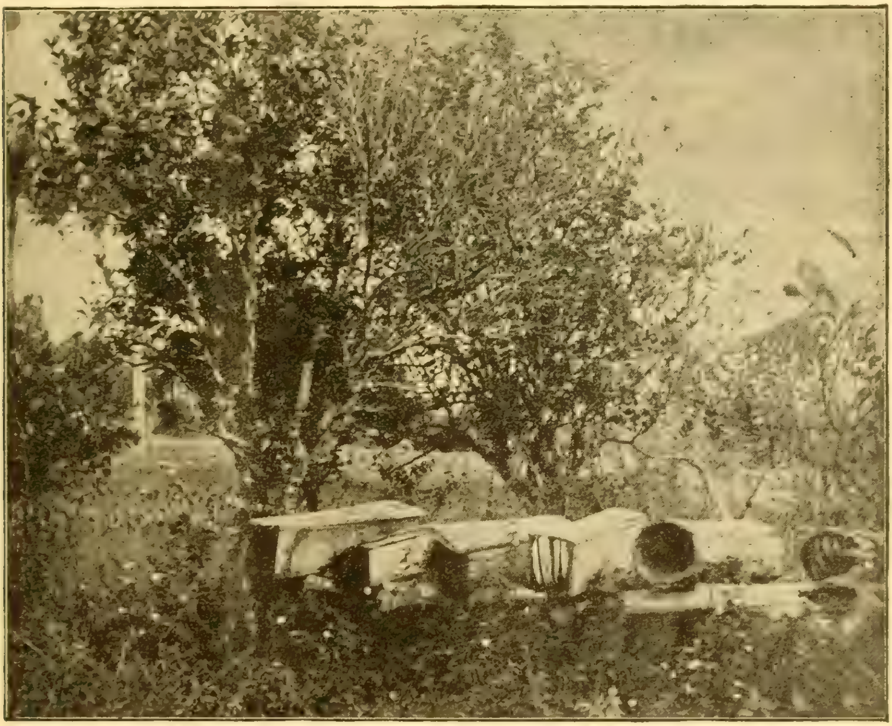
North Prescott, Mass., Aug. 8.

Our correspondent has brought up a matter that sorely needs correction. We do not think that those who have advertised queens of the five-banded type *meant* to misrepresent; but the wording of their advertisements in some cases is misleading. Bees of the five-banded sort are a rarity, and purchasers should not expect the untested and many of the tested queens in the "five-banded ads" to produce five bands. Most of the bees, as we know from experience, will be only real yellow three-banded bees with a small per cent of five-banded bees sprinkled in.

CUBAN APIARIES.

A STUDY IN ETHNOLOGY.

Dear Mr. Root:—I have put an elaborate title across the head of this sheet, and feel like writing a monograph under it. But the press of other matters warns me that this must be merely a squib. The inspiration to write comes from reading in GLEANINGS of Aug. 1st a letter from my friend and college mate, Mr. B. W. Law, of Havana, Cuba. In this letter friend Law tells you how his apiary has increased in eighteen months from one colony to over thirty, and that they have produced 7240 lbs. of honey. He tells you, also, that this increase has taken place in spite of an absence of three months, during which the bees received only the attention of a friend who could see to them only at infrequent intervals. He does not tell you what I feel ought to be said in order that you may understand the matter—how fully his own time is occupied with the demands of an extensive and exacting business — a business that would wear out a less vigorous man, even were he in a cooler climate and not in the tropics. But to this I can testify.



A "FULL-BLOODED" CUBAN APIARY.

Now, the point I want to make is this: If our friend and his wife (for she had a hand in it too), who are foreigners in that country can accomplish so much in spite of many other duties, and in spite of being foreigners, what may we expect from one born in that beautiful island, and free from the cares of an exacting business? I will not attempt to answer this question, but will merely put one fact in evidence.

It was my fortune to enjoy the hospitality of Mr. and Mrs. Law a year ago last winter. This was when their apiary consisted of a single colony. While with them they took me on a long journey over the island — a never-to-be-forgotten trip. Would I could tell you of the palms, the ceibas, and the — but I am writing about Cuban apiaries.

Well, we found one—a real pure-blooded Creole apiary—not a hybrid, Yankee affair such as Mr. Law describes in his letter. It was in an orange-grove, near a magnificent group of palm-trees. The golden fruit loaded the trees and covered the ground. Saucy wild flowers poked their heads fairly into the hives; and the hives, in return, stuck out their white tongues of comb. I will not attempt to describe the scene. Fortunately we had a camera with us, so I can send you a picture of this wonderful apiary.

J. H. COMSTOCK.

Cornell University, Ithaca, N. Y., Aug. 4.

[Many thanks, friend C., for your brief communication, and especially for your cut of the apiary showing us plainly the oranges on the trees, and the flowers that do really poke themselves almost into the hives. What a field for enterprise and thrift indeed! Now, when the inspiration comes again, please do not quench it nor cut it short. The locality, even in far-off Cuba, where such increase and crops of honey can be made as you mention, can never be uninteresting to the readers of GLEANINGS.]

MY EXPERIENCE WITH A SELF-HIVER.

DR. MILLER FEELS SOMEWHAT HOPEFUL OF THEIR SUCCESS.

I received from Henry Alley a "Perfection" self-hiver, but did not have a chance to use it very early, for the season was so late, and swarming has not been very troublesome. Instead of putting it on any hive at random, with the possibility of its remaining on all the season without being used, I concluded to wait till I felt pretty sure a swarm would come from some particular hive, and then put it where there would be a certain chance to test it. July 18 an egg was found in a queen-cell in No. 70. I said, "There's the place for the self-hiver." So, on it went. It was a little troublesome to make it bee-tight, as the cleat of the hive prevented the hiver from fitting up tight to the hive. A little strip was nailed on at each side to close the open space. Then I waited, and lifted the cover every day or two, only to find the hiver empty, except the trap, and in that I found drones. As a trap for drones it is a big success, and it is a very easy matter to take out the trap, empty it, and put it back again. About 8 o'clock this morning, July 28, Mrs. Miller said. "I think there's a swarm out." Going down I found bees issuing from No. 70, and in a few minutes they had settled in two clusters on two different trees. Turning my attention to the hive I saw the queen on the ground. "There, now," said I to myself, "Emma will say she is more sure than ever that no reliance can be placed on any excluder holding a queen if it will let workers through," for she has always said to any thing I might say about a queen-excluder, "*If* it will exclude." And then I'd reply, "It is hardly wise to ignore the experience of others; and while *we* have been so unfortunate as not to be very sure that any queen has ever been prevented from going through an excluder when she really tried to, *others* say that excluders do work; and we can hardly put our little experience against that of a good many others." But then I would get the womanlike reply, "I don't care for the experience of others if I've had experience enough of my own; and you know very well that our queens *have* gone through, even when using the latest and best excluders. When I've seen the queens go through with my own eyes, I don't need the evidence of others that they can't go through." To this I could only reply that the cases she had seen were not with the latest excluders, and there was some chance for mistake in the matter so long as she had not actually seen the queens go through the proper perforations. But in this case, if the queen went through I could hardly say any thing in defense.

Looking closely, while the bees were still issuing, I saw some of them coming out at the side, between the hive and hiver. Stooping down I could see that I had not put my strip quite low enough, but had left a little crack which had been gnawed larger by the bees. Through this the queen had undoubtedly come, as she was on that side, and not far from the opening when I found her. Lifting the cover I dropped the queen into the hiver to give her a second chance. Then I watched closely to see whether she came out again through the same crack, for there were still a good many bees coming through it. Pretty soon the procession ceased, as the swarm was all out. Then I wanted to find out whether the queen had gone into the trap or had gone back into the hive. I thought I might be able to see her in the trap by looking through the front, if she were there. I could see plenty of drone heads trying to get through, but nothing that looked like the head of a queen. To make sure, I took out the trap, opened the tin slide at the end, and watched eagerly to see the queen come out. Drones came one after the other, but no queen. At last, as I was just concluding all had emerged, out came the queen.

I put her back into the trap, put the trap in its place, and then went for a hammer. I pulled off the strip, nailed it on just a little lower down, and then awaited the return of the swarm. They had very kindly consented to wait long enough for me to make any necessary repairs, and were out in all about a quarter of an hour. At last they came back, just as I have seen them come many a time when there was no hiver in the case—first a few anxiously inquiring bees, then a sprinkle, then a full shower. No other swarms were out, so there was no chance for unpleasant complications by the mixing of two swarms. Some time after they had had time to get settled I went down to see how many bees were in the hiver. A goodly cluster was there, but there didn't seem nearly so many as had been hanging on the trees—I should hardly think more than half as many. Still, there were enough for a good-sized swarm; and if as many would always be found there I'd call it a success, for it will be an easy matter to add to the swarm as many as desired from the old hive. I think I shall leave them in the hiver for two or three days, to see what the outcome will be; for if it is to be a practical thing with those who have out-apiaries, there will be times when a swarm will be left to its own resources for two or three days. I should hardly want to be obliged to go the rounds of the apiaries every day.

I have not felt very enthusiastic over the matter of self-hivers, but I am inclined to believe they have come to stay. The little experience I have had in this one case shows me that great care is necessary in making perfect connection between the hive and the hiver, so that no bee be allowed to get out between. And I suspect it may be well to fasten the hive and hiver together with nails or screws, so there may be no possibility of their getting accidentally pushed apart or slowly drawn apart by alternate swelling and shrinking of the wood.

July 29, 11:30 A. M.—I have just been down to interview the colony with the self-hiver. We had a heavy rain last night, and the thermometer took a sudden drop from the place it has been holding the past few days among the nineties, and stood this morning at 58°. Was there any danger that the queen would be deserted and chilled in the trap? Of course, it's a rare thing to have the thermometer at 58° during swarming time; but then, it might happen again any time. I looked through the front in the trap, and could see not more than eight or ten bees, but could see no queen. Still, it's not easy to see through the excluder zinc, and she might be there without my seeing her. I lifted off the board cover. The cluster was still there, but shrunk in size. The difference in temperature would shrink it without there being any fewer bees in it.

Then I took out the trap to make sure whether the queen was there. I opened the tin slide and watched carefully all bees that came out—one drone, a very few workers, but no queen. I looked carefully to see if any thing more was left in the trap, dead or alive. No, there was certainly no queen there.

I put the trap back in its place, lifted off the board cover from the hiver, then lifted the wire-cloth cover carefully, and with it all the cluster of bees except what were on the comb. Then I lifted out the comb (they had built no comb, but I had put in a frame at the front of the hiver: and immediately found the queen on it, looking smaller, I think, than she did yesterday. She was putting her head into one cell after another, as if looking for a cell in which to lay. It seemed not easy to find one to her mind (they were mostly drone-cells), but finally she laid in one. I left her on the comb, and put things back as they were.

How did she get out of the trap? for I am positive I left her in it yesterday. Emma thinks she got through the excluder zinc, but I hardly believe it. If she could get back through the zinc, why didn't she get out through it yesterday, when she was trying so hard to leave the hive? True, she looks smaller than she did then, but her thorax is probably the same; and until I have good proof to the contrary I shall continue to believe that it is the thorax and not the abdomen that stops her from going through the zinc. I think it more likely she got out of the trap in the same way she got in — through one of the cones. Is that likely to happen often? But if the queen does not go back into the hive, but stays in front with the cluster, isn't it better that she should get out of the trap? If she would stay out with the cluster of her own accord in the first place, would it not be better to have no trap or any thing else to prevent her going back?

I'd like to see the experiment tried, of having a hive placed in front with free communication between, and only a strip of perforated zinc in front of the front hive. C. C. Miller.

Marengo, Ill., July 29.

[If you had tried the Pratt plan there would have been no leak holes from which the queen could escape. We presume it's too late for you to try it this year; but next spring, if you will remind us, we will send you a few of the Pratt swarming escape-boards, and then all you will have to do will be to put the parent colony into an upper story or super above the board, leaving the lower story filled with combs for the reception of the swarm. Of course, an entrance-guard should be attached. Alley's arrangement is too expensive. Instead of going to the expense of an extra box, an ordinary super or upper story should be used in connection with an escape-board. The latter can be furnished at a small expense. The Alley box is not easy to attach to all hives so as to be bee and queen proof in its connections; but a super, such as is being used in the apiary, being made for the hives, will fit as a matter of course.]

WORMS IN COMB HONEY.

HOW DOOLITTLE DESTROYS THEM.

When honey is stored in a warm room, as it always should be, there is a difficulty which arises, which, if not headed off, often results in quite a serious loss. This difficulty comes in the shape of the larva of the wax-moth. I have yet to see the pile of 2000 pounds of comb honey which does not have more or less of these worms or larvæ upon it, after it has been stored in a warm room for two or three weeks, although, as our bees become more and more Italian, we see less and less of their work. After the honey has been away from the bees about ten days, if we inspect the cappings of the honey closely, we shall detect little places of white dust resembling flour upon the surface of the combs, and usually the most abundant near the bottom of the comb. Now, although this place may not be larger than the eye of a fine needle, still it tells us for certain that a tiny worm of the wax-moth is there, and that, unless it is destroyed, it will destroy more or less of the nice white cappings which incase our honey.

While in different cities a number of years ago, looking after the honey market, I saw boxes of honey which had worms in them as large around as a slate-pencil, and an inch or more long; and although they had nearly denuded the honey of the nice white cappings to the cells, still I could not make some of the grocerymen believe that the worms lived on the wax, they calling them "honey-worms." Such a spectacle soon disgusts customers, and injures the sale of comb honey very much. If, after several examinations, you fail to find such little, white, flourlike places, you need be thankful. If you should find these, the next thing is to sulphur your honey, as this is the only known remedy for these pests except picking the worms off by hand, which is too slow where there are many of them. To sulphur, I procure an old kettle and put some ashes in the bottom of it so there will be no danger of fire resulting from the heat from the coals which are to be placed therein. When I have the kettle thus prepared I take it to the honey-room and pour sulphur, which has been previously weighed, on the coals, to the amount of 4 oz. to every 75 cubic feet contained in the room, when the kettle is quickly pushed under the pile of honey (it having been piled a little off the floor for this purpose), and the room closed. You will have to be spry or you will take some of the fumes thereof yourself, which is not very pleasant, I assure you. I now go and look in at the windows (two of which should be provided for ventilation in any honey-room), to which the few flies which chance to be in the room will come, hoping to escape their doom. As soon as I see that the last fly is lifeless I take out my watch, and, after the lapse of five minutes, I open the windows so as to carry out the smoke as soon as possible, for, if allowed to settle on the combs, it will give them a greenish color, which will be a damage to the sale of it. This same thing will also be likely to occur if much more sulphur is burned than the amount given above. It seems to be a very nice point to have this matter just right; for if too much is used the combs are sure to be turned green; while if too little is used the worms will not be killed. The above amount has been arrived at after years of trial and experience. If more honey is brought into the room after the first has been sulphured, this is also watched; and when the marks of worms are seen on these, the same operation is repeated again, and so on till we are sure the honey leaves our hands without danger of these pests making an appearance after it has been placed upon the market. All sections having cells of pollen in should be stored by themselves, as such combs are almost sure to be infested with worms, where there is any trouble in this respect.

While on this subject it might not be amiss to say that we are not troubled nearly as much with these worms at the present time as we formerly were; and the reason for this I attribute to the greater intelligence of our apiarists along the line of not leaving combs exposed after the bees are off them so as to breed these pests, as was formerly done by our forefathers. Still more care in the years to come will certainly largely free our apiarists of this moth difficulty. Hives of comb left standing in the apiary after the bees have died from them, as they nearly always used to be, will give moths by the thousand, to be a nuisance in years to come. Care, by all, in this matter will soon bring us to where no sulphur will need be used. G. M. Doolittle.

Borodino, N. Y., Aug. 15.

[In our locality, moth-worms in comb honey have, of late years, been so rare that we have ceased giving any attention to the matter whatever—that is, we have not done any brimstoning for years back; and although we do not produce much comb honey, we buy quite a little. Wherever these worms do make their appearance, however, the matter should by no means be neglected; and the directions given above by friend Doolittle are, in my estimation, as brief and as much to the point as any thing that has ever been written upon the subject.] A. I. R.

ITALIANS AS HONEY-GATHERERS IN CALIFORNIA.

AN EXPERIENCE IN GETTING QUEENS FROM THE EAST.

In an editorial in Gleanings of July 15 you ask that each bee-keeper send in a report of his season's honey crop. As the fraternity generally do not like to make reports unless they can make good ones, I do not think you will hear from the individuals of this district this season, so I will report not only for myself but for all of us. Probably I had better begin by telling of what we have done in the past, so by comparison can be seen what a very poor season this has been.

From the country contiguous to Newhall, two years ago there was produced some 300 tons of honey, or 30 carloads, mostly extracted. This year, from the same country, there has not been produced *one* carload. I can hear of but 37 cases, a little more than two tons. Of course, this small quantity has all been taken from two or three apiaries, the most of the bee-men not having extracted an ounce. My own average has been about 9 lbs. to the hive in an apiary of 235 colonies.

ITALIANS AHEAD.

The superiority of the Italian bee has been very forcibly demonstrated to me this season. All such of my stocks gave a surplus, while many of my hives with black bees have not gathered enough for their own use. There are very few Italian apiaries in this section, and I believe the difficulty of getting queens to breed from is the principal cause. This statement may seem absurd when we think of the great number of queen-breeders; but I will give my experience in procuring queens from the east, and then I think you will admit there is some truth in it. To begin with, the honey season here is generally over before you eastern queen-breeders have young queens for sale, and the bee man is then often away from his apiary, engaged in other work. If he should then send for queens, the chances are they will die in the postoffice before he gets them. Our California queen-breeders are all so surrounded with dunghill bees that the possibilities of getting one worthy of being the mother of an apiary are small indeed. I have never sent south, because the only bee-keeper I know there, even by reputation, Mr. P. L. Viallon, advertises no more, so I take it he has quit the business.

In the last two years I have sent east for 20 queens, some of them for a neighbor. One, a "tested" one from a breeder in Michigan, proved to be a hybrid; another, from the "Home of the Honey-bees," I lost in introducing. A man in Massachusetts still has the 75 cents sent him two years ago, but I have never seen a queen from him, dead or alive. To Michigan again I sent for 13 queens; and if the miles covered by myself and a neighbor in trotting back and forth from our apiaries to the postoffice (28 miles round trip) were all added together it would make a distance almost as great as from California to Michigan. After two months of this kind of fun, a letter of inquiry was sent; and in answer we found out that the man had been down with rheumatism, and his wife running the business, or not running it, whichever you like. It was then too late in the season to get the queens, so the money was returned.

Four more queens have arrived dead; and although the cages with the dead queens were returned, the senders do not think the responsibility rests with them—at least, they sent no more. Two of those arriving dead I sent for to J. A. Green, of Dayton, Ill., this summer. The weather being cold in Illinois, he put up the bees to suit that climate; and, their wire-cloth tops being covered, they both promptly suffocated on reaching this State, where the thermometer was over a hundred.

In spite of such vexations I would advise every California bee-man, and their name is legion, whose bees are not good Italians, to send to some responsible breeder (A. I. Root, for instance) and get an Italian queen. It is better to get as many as half a dozen; then by feeding the hives containing them as soon as brood-rearing commences the following spring, get early swarms and the choicest of queen-cells. I have tried the Alley, the Doolittle, and most other ways of getting queen-cells; but none suit me so well as those from natural swarming. If there is but one queen to breed from, or one extra fine one from which it is desired to raise a great number of queens, hives with any kind of scrub bees can be encouraged to swarm; then with a toothpick lift the scrub maggots from the queen-cells, replacing them with blooded ones, the progeny of your best queen. The maggots with which you replace the scrubs should be the smallest you can get.

If living a great distance from a postoffice, so that you can not visit it every day or two, explain the matter to the breeder, and state that, on a certain day, say 15 days from the date of your letter, you will be at the postoffice. The breeder can then figure out how long it will take the queen to make the trip, and ship her so that she will arrive, say, just the day before you are to be there. If any thing prevents his shipping the queen he can have a letter awaiting you, stating what day he can put a queen at your postoffice for you. Whatever you do, do not buy queens because of the *beauty* of their bees. I have never owned a leather-colored swarm of Italians that were not good workers; and I have never owned a straw-colored swarm that were. These "yellow-to-the tip," "five-banded," etc., *may* be good, but those from imported mothers we *know* are good.

Last year I gave a neighbor the privilege of selecting ten queens from my apiary in exchange for one of these queens producing "yellow-to-the-tip" bees, which he had procured from a prominent eastern breeder. This spring these yellow, etc., beauties were afflicted with the "nameless disease," or trembles; and seeing that the colony was destined to die unless they were given a better queen, I killed the old one, and from the resulting queen-cells reared three nice-looking queens. After they had been laying a few weeks I had occasion to examine their hives, and found two were dead and the third was a feeble thing not worth having.

As I write, the mercury in the thermometer hanging on the wall of my adobe registers an even 100° F. In a wooden cabin, such as most of the bee-men inhabit, it would be from ten to fourteen degrees hotter. In such weather as this, hives not looked after are liable to melt down, or at least their combs are. The best insurance against this catastrophe is plenty of shade; but hives painted white, and given plenty of ventilation, will generally pull through. Single-story hives are almost certain to melt down, while one with three stories will stand all the heat that comes, even when not protected. The apiaries here being run almost exclusively for extracted honey, the hives generally are of two stories. At this season, leaving the extra story on is good; but most of the bee-men leave it on also all winter, and that I think is bad. This is the land of the orange and lemon; but for all that it is cold enough here to make bees suffer that are left all winter in great two-story hives, all warped and cracked as most of them are, and letting escape the warmth generated by the bees within. In such hives, bees consume two or three times as much honey as they would in a single-story one fixed up snug, as the bees have to consume large quantities of honey in order to generate a sufficiency of heat. It is this great consumption of honey necessitated by cold hives which occasions so much loss of bees from starvation in California apiaries every year. With the let-up in summer's heat is the time to take off supers. Moths will not bother the extra combs until the following spring, at which time they should be replaced on the hives. With hives where upper and lower stories are interchangeable, a good way is to leave the two stories on the hives; but place the brood-nest above, as heat ascends. If there is no upward ventilation the brood-nest will be kept as warm as though in a single-story hive; and the super underneath will act as a deterrent of swarming the following spring—something which is appreciated by those of us who prefer to make our increase by dividing. If you want swarms, confine your bees to one story and you will get them in abundance if the season is good.

SKUNKS.

Now is the time to make war upon skunks. After three or four months of hot rainless weather the ground gets so hard that these odious and odorous little animals can not scratch it up to get the choice tid-bits in the shape of bugs and grubs off which they commonly live; consequently they congregate around the apiaries and consume enormous quantities of bees. I have seen their dung in my apiary, and it was composed entirely of bees. I should say one skunk would eat several hundred in a night. A neighboring bee-keeper, Mr. G. M. Gardiner, who has had considerable experience in poisoning them, does so by the following method: In front of each hive that is being bothered, and this can be told by the scratches, bury, a few inches deep, a small piece (inch square) of comb honey with which strychnine has been mixed. The skunk will dig it out, eat it, and give up the ghost. A few seasons ago Mr. Gardiner by this method killed some thirty in one apiary that he found; there were probably more whose dead bodies he did not find. I rid my apiary of them last season by trapping eight. This method entails shooting them, and a most sickening job afterward when taking from the grasp of the trap. Some one has told me that a skunk held up by the tail is not dangerous. I can not vouch for the truth of it; but I do know that I do not want to be the one to try to get him in that predicament. I think that tail story is about on a par with that of catching birds by putting salt on their tails. WM. G. HEWES.

Newhall, Cal., Aug. 3.

GETTING COMB HONEY AND EXTRACTED HONEY

FROM THE SAME HIVE AT THE SAME TIME.

Friend Root:—Since I wrote you on June 28, lamenting the wet weather and non-yielding of the white clover, a change of a more satisfactory character has taken place. The weather shortly after became as dry as it had previously been wet; clover, basswood, and thistle all yielded up their sweets, and many a bee-man's heart has revived as his barrels and tins have been called into use. In this neighborhood we have got almost our usual crop, which, however, from the nature of the locality is never very large—40 to 50 lbs. per colony; but I hear of good crops being obtained elsewhere—in one instance about 8000 lbs. from 52 hives, and in another about 100 lbs. per colony from about 80 hives.

Thunderstorms, with soaking rains, have been frequent for the past fortnight, and the white clover is freshened up again, and yielding quite a little, though not enough to amount to surplus. Good buckwheat and fall-flower sections will probably yield well for the next six or seven weeks.

I have this season been trying a plan suggested to me by Mr. McEvoy, our foul-brood inspector, for getting comb and extracted honey from the same hive, and have been so far pleased with the results, as I would in some instances obtain as much comb honey from an extracting hive as I would from one run for comb honey alone, and would have a considerble quantity of extracted honey besides, and finally leave enough in the hive for wintering.

The hive I run is a twelve-frame one, taking what is known as the Jones Combination frame. The frame is 12¾ wide by 10½ deep. I use a section 3½x4¼x1½, of which nine fill up a wide frame. At the commencement of the season, three or four of these, with sections duly filled with foundation, are intermixed with the other combs in the top story; and as the other combs are filled up, the foundation in these is being drawn out, and the sections are gradually going on toward completion. As one goes on the rounds extracting he notes the progress being made; and as they advance toward the proper depth of cell he removes the intervening combs and crowds all the wide frames together. They can be pushed up to one end or side of the hive, as the case may be, and a division-board or nice straightly shaved extracting comb be placed behind them, or, as I have been doing, leave them over the middle of the brood-nest with a straightly shaved comb on either side of them. When they are all sealed up—and there is no outside row of unsealed sections, such as you have on the crate system—the frame is removed, the bees brushed off, and I have a nice lot of comb honey in a very convenient form.

The sections taken in this way are not nearly so much trouble to scrape off, as the bees can't get any chance to place propolis, except just about the edges.

The sections I have used are slotted all round, and the small size as above; but if it were not so that this size suits our trade here better, I should prefer to have six sections to the frame instead of nine, and have them slotted top and bottom only. The bees work more willingly and to better advantage on the large section than on the small, as I have satisfied myself by experiment, and the neighboring combs are left with a more natural surface. With the small sections, the surface of the flanking combs is left uneven, an outline corresponding with the form of the sections opposite being indented upon it, thus making them need a little extra care in uncapping; with the larger section, slotted top and bottom only, there is very little impression on the corresponding comb. R. W. McDonnell.

Galt, Ont., Aug. 15.

SHIPPING AND INTRODUCING VIRGIN QUEENS.

"ONE SWALLOW DOESN'T MAKE SPRING;" DR. MILLER'S EXPERIENCE.

July 12, John Hewitt, "A Hallamshire Beekeeper," sent me by mail two virgin Punic queens from England. They were six days old when mailed, and were ten days on the way, making them sixteen days old at the time I received them. I introduced them to nuclei that had been formed three days previously. No unsealed brood was in the nuclei, and I cut out all queen-cells before introducing.

The queens were dropped on top of the frames in the dusk of the evening, without putting with them any of the workers which accompanied them. In one of the cages the bees were all alive and lively. The queen immediately ran down among the bees in the hive when dropped on the combs. In the other cage one of the workers was dead, and the queen appeared a little sluggish. I found that all the food in the cage had been eaten except a few grains that appeared very hard and dry. When I attempted to put this queen on the top of the combs she seemed bent on crawling up my hand, and finally took to flight.

In spite of the general teaching, that, when a queen flies away, if you will wait it will always come back, I think I have never before had any come back. But I stepped back so as to give it a fair chance; and although it was getting so dark it was not easy to see, I *thought* I saw it alight and go in among the bees after flying around for a minute or two.

The second day after, July 14, I found each of the queens all right in their hives. July 18, both queens were laying nicely, and have continued to lay well ever since.

Of course, I am not able from the above to say any thing about the character of Punic bees; but I think it a matter worth taking note of, that these queens, as well as two others that I received last year, were safely introduced when sixteen days old, after making a journey across the ocean and a long way across the continent. Formerly it was considered a very difficult thing to introduce a virgin queen unless she was very young, perhaps less than a day old. But Mr. Hewitt insists that, by taking the precaution to introduce them in the evening, giving them to bees that have been queenless for 48 hours, with nothing from which a queen could possibly be raised, there need be no trouble in the case.

If success can always be had in introducing, is it not possible that the sale of virgin queens may get to be a matter of some importance? Certainly it is easier to furnish virgin queens than laying ones. It is no unusual thing to find a dozen queens just ready to come out of their cells, in a strong colony that has cast a swarm. If these are to be sold as laying queens, there must be the trouble of keeping each one some days in a separate colony or nucleus to await the time of laying. How much easier to put the young queen immediately in a cage and mail it! The person receiving the queen will, to be sure, be under the necessity of furnishing a nucleus, or some other place in which to put the queen, but this he would be obliged to do in any case.

It may be said, that the fertilization of the queen should occur before shipping; and there is weight in this if only black bees reign at the receiving end, or only Italian at the shipping end; but in many cases it would be about as safe at one end as at the other, so long as the matter of fertilization is so little under control.

If it is necessary to wait till a queen is six days old before shipping, it will not be so easy as to take her right from the cell; but even then it need not be such a very great deal of trouble to cage all the young queens in a hive for a few days. Still, it might not be for the well-being of a queen to be shut up the first six days of her life. I have never taken any very great interest in the shipping of virgin queens, and perhaps less is said about it now than formerly; but sometimes a thing is dropped as of no account, and afterward taken up with general interest. The one thing that I know in this case is, that it does not seem a very difficult matter to ship a virgin queen a long distance and then have her promptly introduced and do well afterward.

WHEN TO PUT ON SUPERS.

A correspondent writes from Arkansas that he does not find in the books proper instructions as to putting on supers, and says, "When I got my bees I put them into a hive with full frames of foundation, and super with full frames. It has often occurred to me that I did wrong in putting on the super before the bees had the brood-chamber full." As the books say nothing about it he wants me to write about it in Gleanings.

Why, friend H., you will find all about it in the A B C, on page—page—page—well, now, I can't just turn to the page; but just turn to "Comb Honey, How to Secure." Well, now, just as sure as any thing, you're right. I felt sure I'd find there all about it; but it tells when to contract (and I doubt whether I'd contract at all), and tells when to tier up; but a beginner who bought a hive with all appurtenances complete might easily suppose, as nothing is said about it, that the bees are to have the whole business at the outset.

Well, you're right about how much the bees are to have in the spring—only the brood-nest till that is filled; and the general rule is, to watch for the time when the bees begin to put bits of white wax on top of the combs, and then put on supers. The objection to putting supers on sooner is, that it does not keep the hive sufficiently warm. With a very strong colony, or in a warm country, the objection would be less. In my own practice I don't watch for the bits of white wax, but put on supers as soon as convenient after I see clover in bloom, that being my source of surplus. That gives me plenty of time to get supers on without being hurried, and I'd sooner have them on a week too early than a day too late. Moreover, by that time the weather is so warm that no great damage is done by having the extra room. Of course, if something else than white clover was the source from which I got my surplus I should be guided accordingly, always aiming to get the supers on a little before the time they will be needed for the main flow. C. C. Miller.

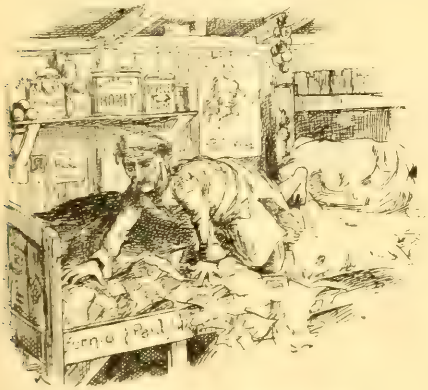
Marengo, Ill., Aug. 3.

[Perhaps you and your friend are about right, doctor, that not enough is said in the A B C in regard to just when the surplus receptacles should be put on the hive. Page 76 of the A B C book, however, considers the matter pretty thoroughly, and may be we shall find something still more definite elsewhere. If we do, we will try to have it incorporated in the next edition.] A. I. R.

RAMBLE 66.

A TWO-HORNED DILEMMA.

Besides the harmless creatures in this country, there are other classes of living things that are not so pleasant to meet. As my time became now more fully occupied I found it necessary to arise very early in the morning. My cabin door faced the east, and the first peep of day came directly into it, for my door and windows were left open. The first morning I arose so early the first object I saw when I stepped outdoors was an ugly head protruding from under my cabin, and only a few inches from the threshold. From the size of the head I judged there was quite a serpent attached to it. I declared war by securing a piece of board, and, getting into a safe position, I put the end of it down in no gentle manner on its neck; and the heavier I bore down, the heavier the serpent breathed. Says I, all to myself, "This must be a new-fangled snake, with powerful lungs." The body meantime kept up such a walloping under the cabin that I give the board a twist away from the hole, and I was startled, and came near dropping the board as the body of a rattlesnake rolled out before me, and I saw it was the whirr of those rattles that I had mistaken for breathing. There were ten rattles, and his snakeship was nearly four feet in length. For a long time after I had "pulverized" his head, the rattles vibrated rapidly. The sound is much like that made by the singing of a locust. When he was stone dead the rattles were cut off, and in my cabin they hang as a trophy. My thoughts run to rattlesnakes more or less all day. I always did believe it was wrong to get up so very early in the morning, and here was a case of genuine danger.



"WHEW! SUCH A PERFUME!"

The next morning when the day broke into my cabin I thought of the danger lurking around my door, and I rolled over and prepared to take another nap; but, whew! there arose such a perfume as Araby the blest never dreamed of. A skunk had fired off a whole battery of his ammunition right under my bed. I had heard of dilemmas with two horns to them; but this was the first that ever sorely perplexed me. I could not get out of bed for fear of snakes, and could not stay in bed on account of skunk perfumery. When I had stormed around a while, and remarked many things about the glorious climate and its perfumes, I cooled down and considered that rattlers and skunks wouldn't come every alternate day in the year, and I would strike a happy mean between four and six o'clock, and get up at five, which resolve I kept, and was troubled no more with undesirable dangers and perfumes around my cabin, though I met and vanquished an occasional rattler on the plain.

The moral I learned from the dilemma was this: Never build a cabin squat down on the ground in this country. Build it up so that you can at least circulate a club under it.

I related the incident and the dilemma I was in, to my old washwoman (now, my old washwoman is a female not to be sneezed at; she takes two daily papers and weeklies, and regulates an old veteran for a companion). This veteran was the happy possessor of a shot-gun; and, being a liberal old veteran, he lent me the gun.

"Why," said he, "it's really dangerous for you to live away out there all alone. Somebody will come along and kill you for $5.00."

"Why," says I, "I haven't got $5.00."

"Well, they don't know but you have. Take my gun, and welcome. Why, what if you should be taken sick away out there alone? You can fire the gun and attract attention. This gun hasn't any quirkums about it." I mentally blessed the old veteran, and took the gun. Nothing very exciting happened for a few days; and, seeing two well-dressed, good-looking, and accomplished ladies successfully hunting rabbits, I shouldered my gun, not very early, one morning, and sallied forth. I didn't wish to shoot my tame rabbits. and got beyond their run; and the first rabbit I fired at, I found that the gun had a quirkum—it kicked, and the muzzle arose in the air. I didn't kill a hawk; but if there had been one above, I surely should.

"Well," says I, "that would be a funny case—shoot at a rabbit on the ground and kill a hawk in the air. The feat would beat Dr. Carver."

I next ran into a shoal of quail. They flew up on both sides of me; and before I could get my gun organized in the right direction they were out of sight.

I entered town, and met a watermelon peddler, and wishing to show game of some kind I purchased a large one for 5 cents, and though I kept on the back streets I met several smart young men who would sing out, "Did you shoot that watermelon?"

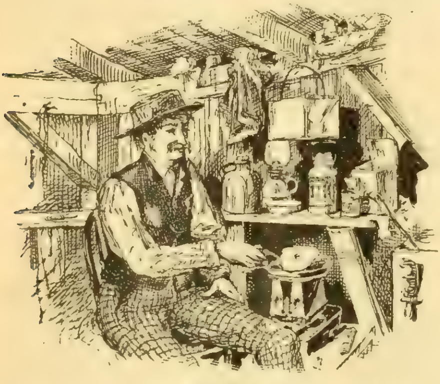
Another very important thing I learned about setting a cabin down close to the ground is, that ants will love you so as to be your constant companions. Ants are very numerous in California, and the little red ants are about as numerous and enterprising as any little people on the face of the earth. I put my eatables in a little cupboard, and suspended it by wires from above; but a prospecting ant found the road down the wire; and one morning when I returned from town, about a million were busy carrying off two loaves of bread, a pound of butter, a cup of honey, and a pound of sugar. While I was a little provoked at them I could not but admire their enterprise. The reader will therefore see why bee-keepers on a lone ranch, miles from any habitation, seldom get lonesome. Animate and inanimate nature gives them enough to think about.

The cooking-utensils of a bee-man are in number according to his ability as a cook, and also as to whether he resides permanently on the ranch. The latter has a stove that he has picked up at a second-hand store, while the transient-dweller uses an oil-stove, or makes a stove out of five-gallon tin cans. In the photo the Rambler's tin-can stove, with its pipe made from the same material, shows to good advantage, and would compare favorably with any thing Robinson Crusoe ever made. The water-bucket hanging up is also made from a tin can.

Such a can cut off three or four inches up will make a very good wash-basin. Cut it lengthwise the same distance up from the side, and it makes a good dish-pan. In fact, tin cans and wire can be found anywhere in California, and are utilized for many purposes. Take out the top and bottom of old rusted cans, and cut the tin in twain; and if you have enough of them they will make a covering to a cabin. In California, canned goods enter largely into the living of not only lone bee-men but the dwellers in towns; and a grocery is largely filled with canned goods. Roast beef, chicken, fish, baked beans, condensed milk, and all kinds of fruits, are on the market in great quantities; therefore whether he lives on canned goods and the bakery, or on his own cooking, the lone Californian lives well. His ranch being located in the canyons, or remote from dwellings, there is a plenty of small game; and a short walk with a shot-gun brings down a rabbit, pigeon, or quail, to grace his table.

Culinary department.

RAMBLER'S CULINARY DEPARTMENT.



OPERATING THE CULINARY DEPARTMENT.

Work in a California apiary is much easier than in an apiary of the same size in the East. There is no preparation for winter, such as chaff packing and carrying into the cellar. The only preparation is to see that they have honey sufficient to last through, and a large stone on the cover. That bee-keepers are careless to leave insufficient stores is evident from the number of bees that have starved this season. They become so accustomed to the good seasons that a poor season is the one they run a risk on, and get left. During the poor season just past, the Rambler considers himself providentially fortunate in having a location that produced honey. From 173 swarms, spring count, I increased to 200, and secured 5½ tons of honey, which sold for 6 cts. per lb., which was fully as well as an apiary would average in the East, while the possibilities were great. In the manipulation of the bees I made the queen-excluder and bee-escape something of a factor. My method of management was, to first get the colonies strong. When the honey-flow commenced I put on the queen-excluders; when the super was full it was raised up; an empty super with empty combs put under it, and a Porter bee-escape board placed between. This was done near evening. In the morning, before five o'clock (if rattlesnakes do not interfere), commence taking off the supers. In taking them off I found that queen-excluders and bee-escapes were not perfect in their operation. I found the queen would get above the excluder in about every fifth hive at the commencement of the season, and but few above at the close. Where the queen was above, of course the escape was useless. The escape was also not effective where a large number of young bees were above. Sometimes two or three center frames would have to be brushed; but it was a genuine pleasure to take off the hives that were empty, and wheel them into the extracting-room; and I found the appliances, though imperfect, a great help—so much so that, when 25 supers were a good day's work for one man in the old brushing way, I could take off 25 and extract them before dinner. It also made the work come in the yard at morning and evening, and in the shade of the house during the heat of the day, which is no small item in this climate.

As to how much I might have gained with a reversible extractor run by a water-motor is only a question of experience. The question with the bee-keeper who wishes to produce cheap honey is, "How much of the work can I do without hiring help?" and all of these helps are means to solve the problem.

The bees in this apiary were worked with a brood-chamber and one super. The best results, I think, can be obtained with a brood-chamber and two supers. The two lower supers should be used for a brood-chamber until the middle of June, and then confine the queen to the lower chamber. Should I adopt a new hive for this climate, my mind now is, that any hive that can be manipulated to give a large or small brood-chamber, as the season requires, will secure the best results. These are the present views of the RAMBLER.

[Friend R., your pictures and description of your culinary department make me sorry that I did not wait longer and go with you out on your ranch. It reminds me of the time I took supper with friend Farr at Oceanside. The coal-oil stove hadn't capacity to cook fast enough for two to eat; therefore, while each dish was being cooked we talked bees and other things. Then you see we had our rations smoking hot right from the fire. Before I come, however, I hope you will clean out all the rattlesnakes and those other "varmints."] A. I. R.

WHO IS MY NEIGHBOR?

SUPPLY AND DEMAND.

One of the saddest spectacles in this our United States of America is the cross-firing, or working against each other, among the same classes of people. Of course, you all know about the complaint that has come up, that "farming doesn't pay," and you have all heard men talk who abuse the bankers, railroads, and merchants, because they believe them to be bitter enemies to the farmer. A great deal of this comes from mistaken notions. It comes from zeal without wisdom. The saddest part of it is, that, when certain ones get a going on their peculiar notions, nothing can stop them, and nothing can convert them. Below is a typical letter. It comes from a farmer, or gardener, perhaps, and yet he is at odds and ends with his own class of people; in fact, I greatly fear that he, through his mistaken notions, is damaging and hurting community round about him. Perhaps you think this is strong language, and very likely many of our readers will insist that he is right and I am wrong. May God in his infinite goodness and mercy help me to present the matter to you in its true light. Here is the letter:

Friend Root:—I noticed in GLEANINGS for August 1st your statement in regard to your selling Pearl onions at 8 cents per lb. Now, one or two years, while I was in the Northwest, some kinds of vegetables were very scarce on account of the drouth on the great Dakota prairie. My land was not all level, and I chose it on that account, as I knew that draws, as we called them there (depressions, or shallow ravines), would not be so apt to dry up. Nearly everybody tried to get every foot of their land perfectly level. I found my theory proved true. I made all my garden, and had all my vegetable grounds in the draw, and never failed of a good garden and plenty of vegetables. When my neighbors failed, I had fine cabbage and potatoes, and several times these articles were very scarce. I could sell my surplus at my own price; but, who were my neighbors? When they came for my potatoes, which I could have charged $2.50 per bushel for, and 25 cents per head for medium-sized cabbage, did I do it? Not at all. I told them 10 cents per head for cabbage was all they were worth, and $1.50 per bushel was all I would take for potatoes. I also had the Pearl onion, which I had sent way down to Philadelphia and got the sets and seed for at a big cost; and I was the only person in that section who raised onions of any kind for three years. I could have sold as high or even higher than you did. But, who were my neighbors? I never took advantage of their necessities—never took over $1.50 per bushel. Now, how any Christian can reconcile Christianity with extortion is beyond my comprehension, whether it be myself or A. I. Root. If you can bring your Christian conscience up to the point of charging 8 cents per lb. for onions because you happen to have a monopoly on that particular kind, I confess you can't know who your neighbors are. I could get 25 cents per lb. for all my comb honey here, because no one within the county has any like it, and I can monopolize the trade; but I charge 20 cents and think that is enough. I have even sent up north, and bought some that cost me over 19 cents to get it here, and sold it for 20. "O consistency! thou art a jewel." F. H. FINCH.

Florence, Ala., Aug. 10.

[At very many of our bee-keepers' conventions there have been grievous complaints about men who persist in cutting down prices. Friend France told me of a man who persisted in retailing blackberries at 10 cents a quart, when they were worth 14 at wholesale. He finally went to the man and proposed to give him more for his whole crop outright than he was getting by retailing them out a quart at a time. The man, through his mistaken notions, refused to sell them *to him* at any price, but kept on retailing at 10 cents. Now, some of you will say that this man was conscientious, and that he was doing as he would be done by. I wonder whether I can show you your mistake. We will suppose some farmer to be straining every nerve to pay off a mortgage on his farm. He goes into blackberries. Drouth or floods are against him, and he has only a small crop. The prospect is, he will not be able to pay a cent on his mortgage. By and by it turns out, however, that others have had short crops too, and the market price is double what it has been in former years. He looks up and takes courage; for his short crop, owing to the scarcity, will bring double the usual price, and so he is on his feet again. I can imagine such a man, with tears in his eyes, thanking God for this unlooked-for opening out of his troubles. Now, suppose, instead, that some eccentric individual, like the one above who writes the letter, says that 10 cents is enough for blackberries, and so he breaks down the market, to the damage and real hurt of his unfortunate neighbor. Is that a Christian act? Suppose we call it honey instead of blackberries. Our good friend Finch admits that all the honey they could raise or get hold of would readily bring 25 cents in their locality; but in spite of this—in spite of the fact that supply and demand have fixed the price at 25 cents, he goes out of his way and loses money, because of his foolish ideas that it should be kept down at 20 cents. He sent up north and bought honey that actually cost him 19 cents, and then sold it for 20, when everybody would have been pleased to pay 25. In doing this he damaged his neighbors, and did them an unkindness that perhaps can not soon be undone. Perhaps a few people are benefited by getting an article below the market price; but even this is not clear. Let me explain: We started cucumbers under glass, so that we, perhaps, could have afforded them at 10 cents per lb. Our neighbors (grocers), however, who brought them in from Cleveland, could not get any at that price, and so they had to give up the business. Again, all we put on the wagon in the morning would be gone before the wagon would be half way round. My own sister complained that she never could get a sight of certain desirable products because they were all sold off the wagon before it reached her home. Now, in order to make the limited supply go around, the only way—in fact, the proper and fair way—was to raise the price enough so the commodity would hold out during pretty nearly the whole route. Thus, you see, all could get a fair chance, and *we* could get a good deal more money.

Now one more point still: Perhaps I should have mentioned before in my articles on gardening, that, owing to the excessive rains, and consequent flooding of our products, up to the first of August all the money we received from our market-garden would not pay the wages of our hired help. Our early crops were disaster after disaster. As it was so with other folks, the price of every thing was unusually high; but even these high prices gave us no profit. On the whole, it was a steady loss. When I got 8 cents per lb. for those onions it helped quite a little; but it did not come anywhere near bringing up the figures so there was any profit at all. The question is, "Is it wrong or out of the way for the farmer or gardener to take all his produce will bring in the general market?" Why, most surely not. In most cities they have a market-place and a market-day. People are bringing in their produce, and there are buyers who are watching and figuring to see where the demand and supply will fix the price. Here purchasers and producers meet together in a friendly counsel; that is, when we know what the demand and supply are, what is an honest and fair price? A few days ago a man drove up with a load of small apples. I offered him 30 cents a bushel for the lot. A market-gardener who had just brought in some blackberries said he was going into Cleveland the next day, and that, if I had no objection, he would give the man 5 cents more than I had offered. I told him I was very glad indeed to have him do so, for I was well aware that 30 cents a bushel scarcely paid for picking the apples, as they were all carefully hand-picked.

It seems to me that a greater enemy than the banker, merchant, or railroader, to the farmer, is the farmer's neighbor who drives his stuff into market, and, in a heedless and stupid way, sells it off for less than the supply and demand would warrant. Yes, I do think that it is a sin against your neighbor, to sell your stuff for less than the proper market price; and especially is this the case when the market is being first established. When I mentioned that I got 8 cents per lb. for those onions I had not a thought of bragging about how I had *cheated* somebody. I was simply trying to tell you that if we can, by improved culture or by the introduction of some new variety, put on the market something of this sort at a time when people are not accustomed to seeing it, we can get unusual prices. There is a craving for these early vegetables, and this makes a demand. The craving is healthy and proper; and the demand is a proper and healthy demand, and there is certainly nothing wrong in letting people who can afford it pay extra prices. To a great part of my readers this whole thing seems clear and plain, and they perhaps wonder that I waste space on any thing so clearly self-evident; but yet with sadness I say it, individuals like our friend Finch are scattered all through the land. We find them here and there in every community; and they wind up their exhortations with scripture texts, and perhaps say in conclusion as *he* says, "O consistency! thou art a jewel." You see, this brother takes it for granted that *I* am entirely wrong and that *he* is entirely right. He tells me that I am a sinner; that I do not love my neighbors; while he is a Christian who loves his neighbors, and that he believes in his Bible. I hope he will forgive me for my very plain speaking. Oh if I could only hear him say, or, better still, if I could hear individuals of his class say, when proper facts are presented to their notice, "Bro. Root, as you put it I do think that I have been at least *partly* in the wrong. I hope you will forgive me, and I will try to be better"! If I could hear him say this, I should feel some hope that our labor troubles might be cured; but when I see a real farmer striking blows that tell vitally to the hurt of his own neighboring farmers, I can not but feel sad. If peeple were getting *rich* in market-gardening; if *farmers* were getting rich, and were proud and arrogant toward the bankers and railroad men, why, then I might be led to consider the point *he* makes—are we wronging the town and city folks by charging them too much for early onions, etc.?

A CHANCE CHAPTER FROM THE TOMATO-BOOK.

SOMETHING FURTHER IN REGARD TO MY VISIT TO THE LAKE SHORE CANNING-FACTORY.

During my visit, mentioned in a previous number, I brought out several facts that may be of interest to our readers; for instance, the proprietors of the canning-factory pay the farmers who raise the tomatoes, as a general thing, about $8.00 per ton for the tomatoes. This would be about 24 cents per bushel, which agrees very nearly with what we have purchased round about Medina for our small operations in the way of canning tomatoes; for we have usually paid from 20 to 25 cents per bushel, according to quality. Friend Cummins found it profitable to have suitable springs made that could be attached to any ordinary lumber wagon; and these springs were furnished to the farmers at a moderate price, in order that they might bring the product to the factory in good order.

One advantage of steam heat in hot-beds over manure is this: When the weather is suitable they can sow the seeds in all their beds, and do it all on the same day. But the steam is not turned under the beds until at such a time as the plants are needed. For instance, one bed is made to start first. When it gets well along, the steam is let on under the next, and so on, thus making the plants come along one bed after another, so as to avoid having them reach the proper age all in a heap. This is certainly a very important matter. In our business of plant-raising I have sometimes thought it needed a mechanical engineer or a Philadelphia lawyer, as the saying goes, to remember to get out the tools and sow seeds for the different varieties of plants, and get them to come out at just the right time. In looking over the beds, I got hold of one very important item. At the first time of transplanting they usually put *two* plants in a place. If one of them fails, the other comes in to make a full stand. If both of them grow, they get along very well until the second transplanting, if it is not put off till too late. And this reveals the fact that, even in raising plants by the hundreds of thousands for field culture they have found it profitable, as a rule, to transplant them all *twice* before they go into the field. I have for years felt sure that this would pay, but I have not found people who would pay for the additional expense. In fact, a good many will take tomato-plants out of the seed-bed at 5 cents per dozen, when they can have nice transplanted ones for 10 cents per dozen. But in running a great canning-factory they find it pays to have twice-transplanted plants to take to the field.

VARIETIES OF TOMATOES GROWN AT THE CANNING-FACTORY.

When friend Day gave me his preference in regard to varieties I was a little bit surprised, especially to know that he put the old and well-known Acme equal to or ahead of all other new varieties. Well, what kind do you suppose friend Cummins uses? Why, the old and well-known *Trophy*. For many years we were in the habit of regarding the Acme and Trophy as a sort of fairly well "matched span," that is, when they were young, or new to the gardening people. I felt like remonstrating; but he assured me that, after having tested every new variety as it came before the tomato-growing world, they had yet to find one that suited their business as well as the Trophy.

I was much surprised when my kind friend turned his horse from the main road and drove off into the wet fields through a piece of fine-looking rye. By the way, rye is largely grown, and the crops are turned under just before the tomato-plants are set. You see, it can be put in after the frost has killed the tomatoes; and by the time it is warm enough to plant tomatoes out for the next season, there will be a big stand of rye to turn under. In fact, friend Cummins says they often turn it under when it is in the head. By the use of a chain attached properly to the plow there is no trouble in getting every spear of it out of sight. Well, now, if you will excuse this digression I will tell you why he drove out into that wheat-field. In order to see what the skins and refuse of the tomatoes are worth for enriching the ground, they loaded wagons with this pomace last fall and drew it out into the fields, and spread it around as they would manure—of course putting it on the poorest spots. Well, wherever this tomato pomace was scattered through the field, you could see the effect of it on the rye almost as plainly as if it had been loads of stable manure. My impression is, that the pomace was put on as a top dressing after the rye was up. Of course, it was scattered enough so it would not smother the young grain.

A NOVEL WAY OF RIDDING THE FIELDS OF TOMATO-WORMS.

You will notice in the book just mentioned, a suggestion in regard to getting rid of the tobacco-worm; and this brings to mind, that, a good many years ago, we purchased some evening primroses of one of our leading seedsmen, because the catalogue said the blossoms were sometimes four inches across. Well, they were; and not only that, but just at dusk, when the plants looked like a thing of life, because of the rapid unfolding of the flowers, we were delighted to see great numbers of beautiful tiny "hummingbirds" going from blossom to blossom, and unrolling great tongues, of such wonderful length that they would reach clear down into the tube of the flower. These hummingbirds were exhibited for weeks to admiring friends as a beautiful supplement to the floral treasure, the primrose. And now it transpires (in fact, I found it out at the time) that these winged things were not birds at all, but a great big moth; and that these birds (?) of ours were the mothers of the great hideous tomato worm. I remember the children got a fashion of knocking them down because it was such fine fun to hit such big fellows a clip. But I never dreamed at the time that the children were really doing gardeners a service. Now for the other remedy.

Mrs. Cummins, like her husband, has now and then hobbies of her own; and one year she took it into her head to raise turkeys, and succeeded so well that she had a beautiful flock of toward a hundred. When they got big enough, turkey fashion they began roaming the fields; and, what do you think? There was much rejoicing when somebody made the discovery that the turkeys were peeking around under the tomato-plants, and gobbling up the tomato-worms before they were big enough to be visible to any *other* eyes than their own. Their keen, sharp, piercing scrutiny cleaned the *fields*, while it fatted the *turkeys*. The flock was sold before the holidays, at a big price. As it was desirable to lead them over as large an area as possible, Mrs. Cummins used to start out with their feed, and call them where they seemed to be most needed. After a while, however, they "caught on" to the program; and as soon as she appeared outside of the house they were all ready for the game. When the weather was bad, and it was still desirable that the turkeys should keep on with *their* part of the work of running a tomato factory, she clad herself in suitable water-proof clothing, donned light rubber boots, and led her rambling family off to the hunting grounds. This is only another illustration of how much there is to learn and profit by, in any sort of calling that one takes up and pursues with enthusiasm: and it illustrates, too, how one department of rural work may be made to come in and nicely supplement another part.

THE PRODUCTION OF COMB HONEY.

THE DOVETAILED-HIVE SECTION-SUPER INDORSED BY R. F. HOLTERMANN.

I am more and more convinced that your section-super with closed-end-frame follower and separator can not be surpassed for the production of comb honey. For years I have looked about for a better method of taking comb honey—sent for a sample crate, and now after testing yours for two seasons I am satisfied. I find with it, that good straight comb is secured. If I am particularly anxious to get nice comb honey, *white*, I can, when two-thirds of the sections are ready, take out my wedge, loosen the follower, and immediately every section is ready for removal. The rest of the sections, which are not ready, I can put back on the hive, or the unfinished sections from several supers can be put together. This year I worked for comb honey in a little different manner than usual. I put on all the section-supers first; and as the latter part of the honey season came on I changed over to extracted. This method necessitates a few extra supers, but it reduces the chance of having cull sections to a minimum. With your super, toward the end of the honey-flow some of the section-holders can be removed, and only the unfinished sections left, be they four, eight, twelve, or sixteen sections.

The bee-escapes work very well. I have been in the habit of using a cloth soaked in a weak solution of carbolic acid. The cloth is wrung nearly dry. The bee-hive is opened in the usual manner. The cloth is then laid on in place of the quilt; the bees disappear like a shot out of the super, and the crate can be removed. The bees adhering to the bottom-bar of the section-holder must, of course, be removed. R. F. Holtermann.

Brantford, Ont., Aug. 5.

[The section-holder arrangement with the new separators worked well in our apiary. The sections, on being filled, come out the easiest and *cleanest* of any thing we have before seen or tried, and just as we have advertised of it. It saves scraping off propolis to a great extent.]

THE POTATO INDUSTRY IN COLORADO.

RAISING POTATOES BY IRRIGATION.

Ever since friend Root visited us here last winter, and then wrote back in his "Notes of Travel" a short and graphic description of the way that we store our potatoes, I have been thinking about sending in a short essay, setting forth in a brief way the way that we raise, tend, and dispose of our potato crop in this far-away western land.

The first thing to be considered is seed, for the abundance of the crop depends in a great measure on the quality of seed that you plant. If the seed is poor you may expect a poor crop of potatoes.

Then we prepare the land in very much the same way that you would for corn, harrowing it thoroughly. When this is done we begin to look about for the machine to plant them with; and we bring out a very intelligent-looking little machine called the Aspinwall potato-planter, manufactured at Three Rivers, Mich. We are careful to see that the machine is well oiled up, and in good trim for work. All the dropping pickers are set to drop all the very same distance apart; then with a great big load of cut potatoes, loaded on a wagon, we bring out the machine and attach it to the rear of the wagon by means of a rope, and we go to the place in the field where we wish to begin planting, and drop off our planter, and along with it a few sacks of spuds (as we call them—potatoes is too long a word) and then we distribute the sacks along the end of the field, very much the same as though you were going to drill in wheat; and when all is out of the wagon, you drive the team back to the planter and hitch on, and away we go; drive fast or slow they drop all the same distance apart; and if we put in all day in the field with team and planter, we are apt to have about eight acres of spuds planted at the end of the day's work.

The next thing to be looked after will be the tending of the crop. This is done generally by harrowing the potatoes when they are just coming through the ground. Some might think this would ruin them. Well, it does seem to tear them some; but in two or three days they are as nice and green, and perhaps more so than if they had not had that scratching. In a few days, too, we look to the condition of our cultivator. This is the same as a corn-cultivator; and, all being in shape for work, we go into the field and give another scratching, or cultivating with the cultivator; and after we have been over the crop about three times we then consider them as cultivated enough, and we begin to prepare them for irrigating.

Now the interesting part of the job commences. First of all, we begin by furrowing out our crop with a ditching-plow. This is to make a ridge on which the potato can grow, and also make a ditch between the rows, so that we can run water in them to irrigate with. This ditching is accomplished by taking a very long evener, or doubletree, as some call them; hitch up your team with one horse at each end and with one horse walking between the first and second, and the other between the third and fourth rows, making the space between the second and third row the one where you want to make the furrow. Remember that this plow throws a furrow out each way. When you have come to the end of the row you turn your team around, with one horse to walk back in the same place he did when you were coming up, thus making the ditch between the fourth and fifth row as we return. Keeping on in this way till the field has been gone over once in every other row, we turn around and go over it, furrowing out the middles this time in which our horses walked before. In doing this it makes the plow run level, where, if we furrowed out every middle as we went along, it would make one horse walk down in the furrow and one out, thus making the plow run lop-sided.

When we are done furrowing out we begin to look about turning the water into our field. We go to our lateral head and leave orders for our water-shares to be turned in—that is, if we are not already using the water to irrigate our alfalfa with. In this case we go and turn the water into our ditch that carries it around to our potato-field, and with shovel in hand we hie us to the place where we want to turn in the water into the furrows, and we have to do some pretty lively shoveling if we keep the water divided up in a great many rows. But, my! how nice it is to see the bright sparkling water go trickling down through the furrows, and while every thing else is dry and parched outside, where the water has not been to it! we see every thing here where we have irrigated, fresh and green as in spring time. If we have very much water, as I have said before, it may keep us pretty busy shoveling; but when we go in the fall to dig our crop of spuds, and we find from six to ten in every hill that weigh from 8 ounces to 3 and 4 lbs., then we feel doubly repaid for all our hard work which we did in irrigating time.

We aim, after giving our crop one good soaking, to keep the ground moist (not too wet), and it should not be allowed to get too dry, else the growth of the potato is hurt, and it causes the scab, or, as some call it, the blight.

It is now getting late in the autumn, and we begin to think about digging our crop, and we want to see what our potatoes are like; so with fork and basket we wend our way to the field, and we begin to fork out a hill here and a hill there; and as we turn out the great big round, hard, smooth tubers we exclaim, "Well, I never!" We shall now want to be getting our sacks in readiness to put our potatoes in. If we have never raised potatoes before we had better get somebody to tell us about what they will go to the acre, and we can easily tell then something near how many sacks we shall want, striking an average of so many sacks to the acre. Of course, we should know how many acres we have in. Well, now, if the shippers do not pay us as much as we think they will bring us in a few weeks or months, we have these big dugouts, or cellars, to store our crop in. If these great underground houses are made right as they should be, our spuds will keep just as nice as you ever saw any thing in your life; and should the thermometer go down as low as 30 to 35 below, if the door and ventilators have been securely shut the potatoes will not freeze, although the mercury seldom or never goes down that low in this climate.

Although I have probably omitted some small items concerning potato culture by irrigation, I think I have given enough to make it clear to the average reader about the way we go at it to raise those great big crops of spuds.

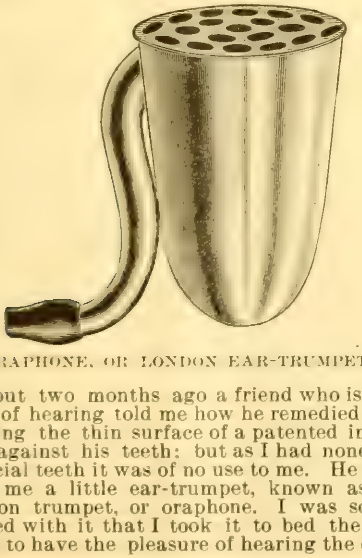
Greeley, Col., June 14. THEO. V. JESSUP.

L. L. LANGSTROTH'S EXPERIENCE WITH THE LONDON EAR-TRUMPET.

HELP FOR DEFECTIVE HEARING.

Perhaps very few of my readers realize how much more comfortable it is to be old in these days than it was some two or three hundred years ago. Before the invention of spectacles, how often a man, still in the very prime of life, must have found himself no longer fit for nice work, through the failing of his eyesight! Now we have spectacles, for the relief of such inability, and also for seeing objects at a distance, such, for instance, as the pebbles on the roadside or the cherries on the trees, almost if not quite as well as the young. It is true, that defective teeth were not so common in the olden times as they now are, but still we know that they were so common that specimens of how this infirmity was remedied have been found in old skeletons, almost as perfect as the modern invention.

But what can be done to relieve those who are hard of hearing? Few can be persuaded to use the huge old-fashioned ear-trumpet or the long rubber tube; and yet when one becomes so hard of hearing as not to hear the preacher or the orator, or even the ordinary conversation of the social circle, it does not take long to realize what a great misfortune has befallen him. Such an unfortunate soon perceives that the world is too busy to try to make a deaf man hear, and gradually ceases to attempt to hear any spoken words, except such as are directed to himself personally. Slowly but surely he drops out of social intercourse with his fellowmen, and life has lost a very large part of its charms.



ORAPHONE, OR LONDON EAR-TRUMPET.

About two months ago a friend who is very hard of hearing told me how he remedied it by pressing the thin surface of a patented invention against his teeth; but as I had none but artificial teeth it was of no use to me. He then gave me a little ear-trumpet, known as the London trumpet, or oraphone. I was so delighted with it that I took it to bed the first night to have the pleasure of hearing the clock tick when I awoke. Speaking of it to different friends I found that there was a demand for it; but while it helped many, others seemed to get no important relief from its use. Finding that, by helping poor deaf humanity, I can at the same time help myself, I am prepared to sell these trumpets at the usual retail price, $4.50, to any of your readers who are hard of hearing or have friends or acquaintances who may be so unfortunate.

This cut represents its appearance; three and a half inches long, and two and one-eighth inches in diameter, is the size usually preferred. On receipt by mail of a money order or check for $4.50 I will mail one prepaid to any address. It may be kept on trial for two weeks; and if not found serviceable it may then be remailed to me in the original package (postage only 5 cts.), and the check or money order sent me will be returned. L. L. LANGSTROTH.

120 Ford St., Dayton, O.

[Perhaps some of the friends may think that the above is somewhat in the nature of a free advertisement; but we should rememeer that friend Langstroth takes the chances of sending them out broadcast, *on trial;* and, judging from some experience of my own in a similar line, I fear he will have considerable trouble in collecting them all in promptly or the pay. And may I be permitted to urge that all who get one on trial will try hard to return the instrument promptly, or else the price, $4.50, say inside of a week? I hope there is no one, among the bee-keepers at least, who would annoy, or allow his friends to annoy, one who has all his life been such a benefactor to bee-keepers as our good friend L. L. Langstroth.]

LADIES' CONVERSAZIONE.

ANOTHER POOR HONEY YEAR AT MARENGO.

SMOKERS AND SMOKER FUEL.

This spring our bees were not in very good condition when taken from the cellar to begin with. Then the disastrous weather that followed made sad havoc with them. We put 289 colonies in the cellar last fall. Dr. Miller had concluded we had too many bees for two to take care of comfortably with what else we had to do, and that he would double up and reduce the number to 200 colonies.

Well, they saved him the trouble by doubling themselves up, only they did the work on a little more extensive scale than he intended doing, as they reduced themselves to 128 colonies to commence the season with. We bent all our energies to get them in good condition for the harvest. We fed them liberally, and yet about the 5th of July some of them were almost in a starving condition.

Others began to report wonderful floods of honey, so we kept our courage up, expecting our turn would come next. When our bees began storing in sections we felt very much encouraged. The honey shook out of the brood-frames readily, and yet robbers bothered at times even then. The expected flood has not yet come. With a few exceptions, work in the supers is irregular, sealing being commenced on the center sections before the outer ones are half filled, even in supers that are overflowing with bees.

In a few cases we thought we were justified in giving second supers. It begins to look now as if we were hardly wise in doing so, as by that means we may have no finished sections in either super; whereas we might have had one super finished. In fact, it looks a little as if we were to be skipped this year. We certainly are having no flood of honey, although white clover is and has been abundant. Basswood has come and gone, and given us nothing. Only a small number of the few trees we do have gave us any bloom. Swarming has troubled us less than usual. It gives us a sort of homesick feeling to read of the big crops others are harvesting. Nevertheless, we are glad they are getting them.

We have one of the improved Bingham smokers, and I have used it almost entirely this summer. One thing I like about it very much is, that you can burn such long pieces of wood in it. We use apple wood a good deal as fuel, and it is excellent. As two of our apiaries are under apple-trees, it is very convenient to fill a smoker, when necessary, by simply breaking off a dead limb and breaking it in pieces small enough to go in a smoker. If a dense, sharp smoke is needed, we get a hot fire started, cut up some green apple wood, and what a very dense smoke it gives us! This will work in either the Bingham or Clark.

We keep a box for holding shavings at each of the out-apiaries, and although they are covered with tin covers we did have trials this extraordinarily wet spring in keeping the shavings dry. If you have never had any experience in starting a smoker with damp fuel, there is no use telling you about it. You couldn't appreciate it. A few live coals from the stove, or a piece of saltpeter wood, is a great help in lighting a smoker. I can hardly tell which smoker I like better, the Clark or the Bingham. They are both good. The Bingham is the more durable one, as it does not suck smoke back into the bellows. I think the Clark not quite so clumsy to handle, and I prefer it for driving bees out of several supers at a time, as it sends a stronger blast. EMMA WILSON.

Marengo, Ill., July 28.

BROOD-COMBS.

MRS. L. C. AXTELL EXPLAINS HOW TO PRESERVE THEM.

It is not a very easy task to preserve old combs when one has over a thousand, as we had this spring. We piled them up carefully, so that no comb should touch the other, and with spaces between and around them, upon shelves, in a small plastered room where we had been keeping our comb honey in years past. Four times we smoked them with sulphur until there was no living insect on the window. The burning sulphur was set under them, so as to ascend through them. The fumes of the sulphur killed the millers, or moths, but not the worms, in the room or in the combs. I have seen almost no dead worms. The weather being hot they breed fast; and as we were using those off the lower tier, and not using many, we did not notice how bad they were up high in the room near the roof, especially on the west side of the room. A few days more and they would have been entirely ruined. As it was, we picked off nearly a wash-boiler of webs and cocoons, and left many thousands in them for the bees to clean out, by placing them in all hives that have no supers on, filling the bodies of the hives; and, if enough bees, tiering them up one and two tiers high above the bees. But as the bees were getting no honey at the time of finding them in that condition, we feared robbing out those colonies, which would most surely have been done. We first put them, with their thousands of worms, into empty hives, and fastened them up so but an inch or two of room was left for the bees to go out and in. The bees carried out what little honey was in them, and cleaned out most of the worms; but if the combs were not set an inch or two apart the worms again made webs and went on with their work of destruction. After the honey was taken out we then tiered them up over hives as above spoken of.

Some of the worst combs we set four and five together, close in front of the comb-honey colonies—the large colonies, which came out of their own hives and clustered over them cleaning out all worms and webs, and sealing up the injured combs where the webs were torn out. I believe they might be left thus at one side the entrance of large hives for some time — I don't know but all summer—provided the wind would not blow them down, nor the rains wet and rot them, nor the sun melt them. Of course, we could set them in front of such hives only as were under shade; or, if not shaded, we leaned some old boards up against them.

I had no idea how nicely the bees would clean and patch up those combs; but we shall have to take them in before a heavy storm, as I think a storm would injure them. If the bees were getting much honey it might do to set combs having a little honey in that were being injured by the moths, close to the fronts of full colonies; but I think it would cause robbing nights and mornings unless honey were coming in very plentifully. They might be left there over night and taken away in the morning; but those dry combs cause no robbing or commotion whatever. We had a few combs left in hives all summer that bees could get at, and not a moth troubled them at all. After this, when we lose bees in wintering I think we shall leave the combs in the hives they died in, and leave the entrance open for the bees to keep out the moths and take out the honey. Moths do not seem to work so much in dried combs that are perfectly free from honey and bee-bread. I think it is pollen that they like much better than honey. I think I have seldom or never seen moths in a section of comb honey if there were no cells of bee-bread in them.

Putting combs in a cellar, and fastening them an inch or so apart, would, I think, be a good place to keep them, as some have recommended, provided they could be kept from the mice. MRS. L. C. AXTELL.

Roseville, Ill., Aug. 11, 1892.

HUMBUGS AND SWINDLES.

THE COLD PROCESS OF PUTTING UP FRUIT.

Friend Root:—Can you give me any information of the Ohio Fruit Company, New Concord, Ohio? They are selling the California cold process of putting up fruit, and I have bought the recipe. They use compound extract of salyx. Is there any danger in its use? What is it? Is the process a humbug or not? Why I ask is this: I see in a ladies' journal a notice of its being a fraud, and the salyx extract as poisonous, and telling us not to run any risk. I thought if any man in Ohio would know of its reliability it would be you.

Bloomdale, O., Aug. 3. W. N. FERGUSON.

[My good friend, neither Bradstreet nor Dun makes any mention of any such fruit company at all; therefore there is no such company, or, at least, it is a very small institution; and, besides, this whole matter of selling recipes for doing any thing is a humbug and a swindle. The matter has been gone over again and again;

and our best authorities, our experiment stations, and our agricultural colleges will tell you that no valuable information ever comes through some secret process that is sold for a certain sum of money. Our agricultural periodicals are constantly on the lookout for valuable processes of any sort whatever. If there is any such thing they are ready to buy it and give it to the world. If you will look over the back volumes of GLEANINGS you will find that we have bought recipes again and again, just to see if any thing valuable ever comes in that way. All such ventures have been failures so far. One of the recipes for making artificial honey, that was advertised in most glowing colors, was found in Dr. Chase's Family Recipe Book; and the *great secret* for curing disease without medicine, that a short time ago bid fair to take humanity by storm, and make the vender of the secret a *millionaire*, was all found in our *family doctor book*. It is *behind the times*, this whole matter of getting information in that style. You do not say what you paid for your recipe, but no doubt enough to have bought a nice book covering the whole matter of preserving fruits. I have no personal knowledge in regard to the matter of the "extract of salyx;" but many of our agricultural papers have been notifying the public that the use of salicylic acid, and all such substances of like nature, for this purpose, is at least very dangerous to health. It is a shame that papers that claim to be working for the public good should give place to such schemes. The cold process of putting up fruit is advertised much like the silver-plating outfit. Some woman or some *farmer's daughter* writes to the paper some sort of hint about housekeeping, and then she winds up by saying that she has been making money very fast with the cold process or the silver-plating apparatus. Now, an editor who will accept a blind advertisement of this sort, and take pay for inserting it in his columns, deserves to—become a bankrupt. The truth is, all letters of this sort are not letters at all. No woman or farmer's daughter ever wrote any thing of the kind. The whole thing is a cheat and a swindle, gotten up by the unprincipled *man* at the bottom of it, and *he* pays the editor of the paper a certain sum of money for putting it in the paper in a place where it will seem to be a *bona-fide letter*. Please note that most of these swindles direct people to send their money to Zanesville, Ohio. If the good people of Zanesville do not soon wake up and get this man Bain and his associates out of their midst, their town will soon acquire a reputation for swindling concerns that it may not recover from in years to come.

We find New Concord is in the same county (Muskingum) that Zanesville is; and very likely the rascals thought that another postoffice would be a better place for their scheme. The Postoffice Department of the U. S. has at least *once* forbidden mail matter being delivered to Bain and his clique. Will the proper officials at New Concord please look after this?]

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

PUNIC BEES; ANOTHER ADVERSE REPORT.

As I have five colonies of Punics, and in a climate almost like their own (thermometer from 100 to 117° in the shade), I have been putting them right down to a test. I heartily indorse all you have to say regarding them in a recent issue of GLEANINGS. More is to be learned. As for their being very gentle, they are directly the opposite. Go within three or four feet of the side of a hive just after they have quit work for that day, and they will dart at your pants legs like arrows. I have looked time and again to find a queen, but all my efforts were in vain. I find they also have a terrible swarming propensity. A few weeks ago, while in an alfalfa field I noticed on one of the checks (that had been made to hold the water) a badger-hole about 8 inches in diameter. In this hole, about 3 ft. in the ground, was a fine swarm of bees, hard at work, and well satisfied. I could easily see them. They were suspended from the top, building their combs to the sandy soil. This is a feature that I had never seen or heard of before. F. D. LOWE.

Rosedale, Cal., July 23.

[Here is another, from Mr. Klock, that does not speak very well for the new bees:]

The Punics are prolific, and the very best workers, but that is all that can be said for them. They build nearly all drone comb, and the comb honey in boxes has a very watery appearance. They handle like Cyprians. Smoke had but very little effect on them.

Urban, Pa., July 25. J. S. KLOCK.

HONEY FROM BLACK MANGROVE; A REPORT FROM W. S. HART, OF FLORIDA.

The honey-flow from black mangrove still continues, and is now as abundant as at any time this season, but is liable to cease at any time within the next ten days. Up to date the flow has been considerably below an average, and bees have been notably cross throughout the season, though the bloom has been profuse. The late winter and spring flows were somewhat scant in this section, owing to forest fires and a late frost. Late in April and the first half of May there was a light flow that caused the queens to lay well, and then came another break in the flow that left the colonies with almost no young brood or eggs at the beginning of June, the very time when brood was most needed, as the mangrove flow came late this year. A little stimulative feeding the last three weeks of May would have been a most profitable investment; but I had several weighty matters upon my hands at the time, and did not watch my bees sufficiently close to realize the need until it was too late.

MIGRATORY BEE-KEEPING.

This seems to be getting quite popular here. Several bee-men have brought their apiaries here from the interior to secure the mangrove yield, and these bees come in good shape, as they had built up strong on the orange-blossom and other interior crops. Messrs. Poppleton and Storer also brought their bees back from the St. Lucie River, where they had secured a good crop of wild-pennyroyal and saw-palmetto honey, and got in good condition to make the most of the summer crop here. The Florida honey crop will run considerably below the average for this season, beyond question

My friend Harry Mitchell made a little discovery lately in regard to an application to the hands that prevents the bees from stinging them, but I will let him give it to the public if he cares to do so. W. S. HART.

Hawks Park, Fla., July 28.

BASSWOOD A FAILURE IN RICHLAND CO., WIS.

Basswood is now in bloom. Bees did not begin to work upon it this year till the 18th of July. Last year they began upon some trees on the 3d of July. This is the "off" year up here for basswood to bloom. Not more than one tree in ten will bloom at all this year, and hence the yield of honey will be light. If bees in Richland Co. get enough honey this year from all sources, to winter on, the bee-keepers will be thankful.

ALSIKE CLOVER.

There is a fine crop of white clover growing, but it is mainly from the seed, and may not bloom much; and, in case it does, it may not secrete honey this season. The farmers here are beginning to grow alsike quite extensively. Those who have grown it speak well of it. They think it makes the best of hay, both for cows and sheep, and that it is very profitable when grown for its seed. One farmer in this county has sold $300 worth of seed from 3 acres of alsike clover in 3 years. Besides the seed, his stock—cows and sheep—have eaten every bit of the thrashed straw. He values the thrashed alsike as highly, at least, as the unthrashed red clover. M. M. Baldridge.

Richland Center, Wis., July 21.

HOW FAR APART MUST TWO RACES OF BEES BE KEPT TO BE PURE? SOME INTERESTING FACTS.

I see some write as though they thought two different races of bees could be kept within one mile of each other and yet be no mixing from one to the other. If such writers are practicing what they teach they do not know what mixed bees are.

When the apiary of which I am part owner was first Italianized the Italian bees were unknown about here. At that time there were within five miles of our apiary about as many hives of black or German bees as we had Italians; and by the second season about half of the hives of black bees within that distance showed trace of the Italian blood. A few colonies mixed seven miles off. The bees in some of these hives would be pretty fair hybrids, while in others about a fourth of the bees would show one and two bands, the others none at all. Up to this time no swarms had left our yard; and, according to the theory of nearly all the best authorities on bees (in which they surely are wrong), there could not have been any hybrid drones in the hives of black bees by the second season.

Mr. Editor, you say, in your A B C, that you have never noticed any particular difference in the progeny of an Italian queen mated to a black drone and that of a black queen mated to an Italian drone. There's something wrong. We have reared all of our queens from imported mothers from the beginning, and I have yet to see my first black bee from a daughter of an imported queen, no matter what kind of drone she mated with. Was it not drones from queens that were producing hybrid bees (for of such about half of our queens were at that time) that gave the black bees the small taint of Italian blood? George W. Cleveland.

Decatur, Miss., July 28.

[Friend C., you have struck a very important point. Since you mention it, I do remember that, when we first introduced Italians, every queen we reared produced yellow bees, almost without regard to what kind of a drone she met in her flight; and friend Doolittle has said the same thing. Perhaps the third band was not always very distinct, but the workers all seemed to be Italians, before there was any chance for hybrid queens in our apiary or neighborhood. Very soon I noticed that same thing you mention, among the bees in our neighbors' apiaries, say all the way from one to five miles away from our Italians. There were more or less yellow bees among all the blacks. Some of them were very finely marked. The greater part of them had only two bands, and some even only one. I rather think my statement in the A B C book was intended to apply to the honey-gathering qualities of the bees rather than to the color.] A. I. R.

"ALL CENTERS ON A GOOD QUEEN."

Bees have done pretty well with me this season. A year ago this spring I had 16 colonies, and 6 were queenless. I was discouraged. But I went to work and built them up to 56 colonies, raising my own queens and furnishing them full sheets of foundation. I fed three barrels of sugar in doing it, and wintered every colony. They came through in fine shape. I fed a barrel of sugar this spring; and when everybody was complaning of the bad weather, and bees running down, mine were increasing in numbers. They have swarmed and swarmed—had a mania for it; but I tried to keep them back. One reason why they have done so well, and I want to emphasize it, is because all the queens were raised from a colony that came through good and strong a year ago last spring, and queens were fertilized by drones from a colony that gave me the most honey two years ago. The queens were all in vigorous condition, being only one year old. You know Doolittle says, "All centers on a good queen," and I believe it. All my colonies worked about alike in the sections. I could see no difference. I had nuclei, made the 10th of June, give me on an average 30 lbs. of comb honey. I believe that, if bee-keepers would give more attention to the blood of their queens, they would get better results. I shall get about 3000 lbs. from 55 colonies.

I have just tried a Porter bee-escape. They make it only fun to take off honey.

Syracuse, N. Y., Aug. 2. F. A. Salisbury.

WATER-WILLOW AS A HONEY-PLANT.

I saw E. R. Root at the bee-keepers' convention at Toledo, O., in 1891. I was telling him about a honey-plant that grew in the Raisin River, and he wished me to send a sample to you and have you tell what it was. I got some to send last year; but it got destroyed, so I have cut some more to-day. The blossoms fall off so easily that I don't know whether you can tell much about it. I send some of the seed-pods also, and a root from another stalk that I had trimmed before I noticed it. I first noticed it by the great buzzing of the bees as I was going up the river in the summer of 1890. I did not see many on it last summer, and have not seen any on it this summer. It seems to me it was in blossom in June last year. It grows where bars form in the river, in quite large patches. It came from up stream. It had not got down as far as Monroe last year. I live six and a half miles west of Monroe.

Jonathan Atkinson.

Raisinville, Mich., July 29.

[Prof. Cook says of this:]

The name of the above is *Dianthera Americana*—water-willow. I know of no other bee or honey plant in this family, which is the *Acanthus* family. A. J. Cook.

Ag'l College, Mich.

WORMWOOD SMOKE FOR ROBBERS.

As there is now getting to be a dearth in the honey-flow, so robbers are coming around, there is a chance to play Chinaman on them. To do that, just put a little dry wormwood into the smoker; and when the wormwood smoke gets well to going, go to work, and if you are troubled with inquisitive bees you will see what I have not known to happen in the 19 years that

I have used it at odd times; and when the bees get to coming in where I am handling honey I let them get quite numerous, and then put a handful in the smoker and set it going heavy; and, golly! ain't it fun to see them leave instanter? Try it. **H. L. Jeffrey.**

Woodberry, Ct., Aug. 3.

[We have not tried the experiment above but will do so soon.]

FISH-KILLING SPIDERS.

A subscriber to Gleanings from Iowa sends me a large spider which he says killed a fish—a minnow. He asks me if I would be willing to have my children handle this one. The spider is a species of *Drassus*. These are large, dark, sober-colored spiders. The eggs are in two parallel rows, four in each row. The four middle legs are shorter than are the other four. Some are very large, as was the one sent. The common house spider, *Tegenaria domestica*, belongs to the same family *Drassidæ*. I have handled just such spiders often, and have taught my children not to fear them; and I assure my Iowa friend that we all are yet here, and never yet were harmed by a spider. I will agree to handle any Michigan or Iowa spider, without gloves, even as large a one as that sent by our friend. **A. J. Cook.**

Agricultural College, Mich.

THE BEAUTIFUL MAY—THAT DIDN'T COME.

All through the long dreary April
We longed for the lovely May
With her sunshine and birds and flowers
That come with the soft spring day.
But we watched her birth in the morning,
Through teardrops of falling rain;
For nature was grieved for her darling,
And wept that she came thus in pain.

We hoped she would smile on the morrow,
And watched through each dreary day
For the flowers, the birds, and the sunshine,
To welcome the lovely May.
But the winds grieved with mournful sighing,
And the clouds wept their tears of pain,
Till all of her sad days were ended,
And she died in the sobbing rain.

JUNE.

But June came, and with it the sunshine;
It came as if meaning to stay;
The clover-blooms nod to the breezes;
The busy bees, working away,
Bring joy to the hearts of their keepers,
And teach us to never despair;
For He who gives all of our blessings
Knows how to, and when to, and where.

Mrs. A. L. Hallenbeck.

Millard, Neb., June 25.

HIGH-PRESSURE GARDENING.

BY A. I. ROOT.

WINTER ONIONS.

As it is about time to plant Egyptian, or winter onions, I will give you an idea which may be new to you. It is this: Plant them very deep—from four to six inches. If the ground is in good order it is not hard to do this with a dibber or sharp stick. As these onions do not form bulds, and as the part which grows in the ground is always white and tender, it is desirable to have this part as long as may be.

CABBAGE-WORMS.

I have for the last five seasons successfully used wheat bran to exterminate cabbage-worms. I put from a tablespoonful to half a teacupful into the heart of each plant, according to the size. A second application is sometimes necessary, but not often. When early cabbage does not mature before the second crop of worms appear it is well to give it another dose at that time. I do not know whether the bran kills the worms or drives them off; but I do know that they stop their work. I have always applied the bran after the worms were at work, but I think it could be used as a preventive, as I have never yet seen a moth alight on a cabbage where the bran had been applied.

"Nary" honey this year. **E. S. Easterday.**

Nokomis, Ill., Aug. 23, 1892.

HOW TO USE LARGE CUCUMBERS.

Pare, and remove the seeds; cut in strips and lay in cold water half an hour. Add salt, and pour boiling water over them; then boil until tender (usually about 20 minutes); make a cream dressing, taking for six fair-sized cucumbers about a tablespoon of flour; butter, the size of an egg. Rub the flour and butter together until smooth, in a saucepan; add a cup of milk; salt and pepper to suit; boil a moment or two until it thickens. Serve. The same is nice served on broken toast.

ANOTHER RECIPE FOR LARGE CUCUMBERS.

Sliced lengthwise and dipped in egg, or fried after dipping in a batter, same as egg-plant is usually cooked. Or, cut off one end of the cucumber; take out seeds, and fill with dressing of bread crumbs, onions, and a little chopped meat. Replace the cover and bake like stuffed tomatoes. This will apply also to tomatoes. Rice can be added for those desiring.

No one need fear any trouble from eating cucumbers, tomatoes, or egg-plant so cooked, as all the hinges, or doubling-up tendencies, have, in the process of cooking, been extracted.

Cleveland, O., Aug. 24. **R. V. Murray.**

STRAWBERRY REPORT.

My first season of growing strawberries, according to Terry's A B C of Strawberry Culture, has just closed, and has been perfectly satisfactory, both as to pleasure, profit, and glory. In fact, it was almost a repetition, in a small way, of Bro. T.'s book. We had only a small patch—an eighth of an acre—and wife and children did a great part of the picking. The berries just sold themselves. We did not have enough to go around. Some private customers, who appreciate a good article, actually spoke in advance for their berries next season. I averaged nearly 10 cts. per quart for my berries, while common ones were a drug at one time at 5 cts. Total cash sales were $45. We have had berries on our table three times a day for nearly a month, and have canned, jammed, and given away several bushels not included above. All the common berries in market were besmeared with earth, and of poor flavor and color. Mine had been well mulched and thinned, consequently were quite choice during the wet cold spell the first of the season. If all my plants had been Haverland, with Mt. Vernon as a fertilizer, my sales would have been fully $10 more. My Haverlands were so large and fine that some of our local growers who have it asked what variety they were. The Eureka I place next to Haverland, as it is rather more productive than Bubach with me, and, coming in so late, they sold very readily at 15 cts. They are at this date, June 15, large and showy. The Sterling and Saunders were a complete failure on my soil. Beder Wood and Mrs. Cleveland ran down too soon, though good bearers. The Mt. Vernon does better pretty thick.

Winchester, Ky. **Walter Stuart.**

A GLIMPSE OF THE POSSIBILITIES OF GRAPE CULTURE IN CALIFORNIA.

NOTES OF TRAVEL

FROM A. I. ROOT.

GRAPE-GROWING IN CALIFORNIA.

The picture I submit is one that I purchased of a photographer in Riverside, and I do not even know where the scene comes from. Very likely it was one specially selected. There is no question, however, but that it is real truth and real life; and I feel sure that all the fruit which you see scattered about actually grew on those very "bushes;" for in California, grapes grow on bushes rather than on vines. It makes one think of the old couplet:

> Where the gold, it hangs on bushes,
> And the fish swim on dry land.

The lifelike action, movements, and faces of the workmen would of itself, if nothing else, make one believe the picture is real. Then the trays that they spread the fruit on are no fancy got-up affairs; in fact, that one in the foreground is so rickety that, if the workman does not handle it carefully, it will be likely to come to pieces. The severe heat and intense dryness of the atmosphere have much to do with the splitting and breaking of the wood. And, by the way, one wonders how it is possible, without irrigation or water, for a single vine to bear such quantities of a fruit that is mostly water itself. I told you that grapes in California grow on bushes instead of on vines. With the thousands of acres—yes, sometimes many hundreds of acres in one vineyard—providing trellises where lumber is so expensive would be entirely out of the question, and so all the grapevines, both for wine and grape-growing, are trained to stand alone. In fact, many of the vines look like the stump of a small tree. Great numbers of shoots come out of this stump in the spring; and after bearing their fruit they are cut back within two or three buds of the top of the stump; and this laborious trimming is the most expensive part of grape-growing. While at friend Morris', in San Jacinto, I saw a man with appropriate shears trimming the vines. Well, there was such a profusion of shoots, and such a brush-heap of—not foliage, because the leaves were all off in January—that it looked to me as if it would be a good half-hour's work to trim even a single vine. But there is no help for it. It has to be done if you want good fruit. I do not know what would become of one of these big vines if it were not trimmed. Yes, I do too; for at an old mission we had a view of a single grapevine that covered a trellis big enough to make a good-sized dooryard. Well, if grapevines bear fruit every season, as you see them bearing in the picture, what a splendid business it would be to grow these big white California grapes, that sell for from 5 to 10 cents per lb.! Well, there are a good many "ifs" in grape-growing as well as in fruit-growing, there and elsewhere. Where one has tons upon tons of grapes, he does not get any thing like the price they sell for by the single pound at the fruit-stands. It costs money to get them to market, and it costs money to get them before the people. While great fortunes are, of course, many times made in grape-growing, there are, on the other hand, many grape-growers who do not make their expenses, and the vines are frequently grubbed up to give place to orange or lemon trees or something else, because "grape-growing don't pay." I suspect, however, the trouble is, usually, because the proprietor does not *make* it pay. These things rarely if ever pay anywhere unless the proprietor puts his brains right into it and *makes* it pay.

I hinted that grape-growing could be carried on without irrigation. This is certainly true in some localities—that is, after the vines get started. It must be, I think, that the roots go down so deep that they find the necessary amount of water to perfect the fruit.

There is another pleasant thing about grape-growing, especially where they grow the kind of grapes that make raisins. You do not have to peddle them out quick, as we do strawberries and most kinds of fruit here in Ohio. Just put them on these trays, spread them out in the sun, and let them dry into raisins. In fact, they will dry into very fair raisins, hanging right on the bushes; but I believe this is not considered a suitable way of making good raisins. With so much foliage in the way, the fruit is usually picked and carried away to a piece of ground where they can have unobstructed sunshine; and sometimes they hunt up a locality where there are no dews, for there are places in California, as I have told you, where fogs and dews are both almost if not quite unknown.

Now, very likely I have "put my foot in it" a good many times in my description above. If so, will some good California friend have pity on me, and give us a brief article descriptive of this fine picture—straightening me out, of course, where I have gone astray? And I will say, in conclusion, that, with all the discouragements to the grape industry, I tell you a man ought to feel happy who owns a vineyard containing such a crop as the one in the picture.

OURSELVES AND OUR NEIGHBORS.

If any of you lack wisdom, let him ask of God.—JAMES 1:5.

He giveth power to the faint; and to them that have no might he increaseth strength.—ISAIAH 40:29.

It would seem, from the above text, that the Christian should be a wiser man than the unbeliever. Well, I am of the opinion that he *should* be a wiser man. The trouble is, there is too little faith and too little *common-sense* Christianity. If you apply it to *nations* rather than to individuals, I suppose the world generally will assent. Christian nations have more wisdom than savage ones, or a nation that disputes the existence of God—if there is any such *nation* in the whole wide world. The trouble about applying such a test to individuals is, that individuals are of such great variety we need an assembly of individuals or a committee to embody real common-sense wisdom. I will tell you why I use the term "common-sense wisdom." Not many hours ago it was repeated in my hearing that some of my "neighbors" (now, don't be in haste to feel hurt, any of you, for I have a *great many* neighbors here and there) had made the remark, "You must not set your hens on Friday. I once knew a woman who set a hen on Friday, and she put fourteen eggs in the nest, and not an egg hatched. You see, in the first place Friday is an unlucky day, and fourteen is an unlucky number. When she had got these two together, she did not get even a *chicken*." Now, I do not know that those were the exact words, but somebody in our neighborhood did repeat something pretty nearly like the above. It might have been in pleasantry, and may be nobody among my neighbors has any faith in such silly nonsense. But we can not get rid of the whole matter of superstition quite so easily as that; for I think *you* know, my friends, as well as *I* know, that there are a good many people in this world who repeat such stuff and hand it down to the coming generation, with an honest belief that it is *wisdom*. Now, if all the wisdom there is in the world were of this class, I honestly think the best thing that the Almighty could do with us would be to sweep us from the face of the earth, and give us all up as a sad and hopeless blunder. A man who once worked for me objected to purchasing a horse because it was *Friday*, and he was honest and sincere about it. What an idea — that some superstitious tradition should teach that it is right to start work on *one* day of the week rather than on another! or, in the same line, that there is a particular virtue in numbers; as, "There is luck in odd numbers." Come to think of it, there may be *luck*, after all. But the whole matter of luck is being very rapidly relegated to the past. Somebody, out of pity for the superstition about setting hens, has suggested that thirteen eggs make a circle in the nest better than fourteen. If you put in fourteen, owing to the size and shape of the nest one of them gets pushed out and does not hatch; and that an even dozen or a little more is just about what an ordinary hen can cover. This reminds me that a good lady friend, who is both a neighbor and a relative, has 21 White Leghorn chickens, all hatched by one White Leghorn mother. It would seem from this that a dozen or a little more is not all that even a *moderate*-sized hen can cover. Now, will some of my good friends pardon me if I suggest right here, that, with all the wisdom that God has given me—yes, and in answer to most earnest prayer, too, *for* wisdom, I am inclined to think that the good brothers and sisters who think the world would be greatly benefited by having Sunday on *Saturday* are but little better off than one who can not even set a *hen* on Friday because it is an unlucky day.

It is in regard to this matter of sickness, disease, and death that I propose to talk to-day. People say they *know* that Friday is an unlucky day, because they have tried it again and again. In the same way of reasoning they buy bottles of medicine, and stoutly insist that they feel better after taking it. It may occur to you that I am getting a little wiser on some things than I was a year ago when I said so much in defense of doctors and medicine. Well, I trust I *am* a little wiser, for I have been watching and praying over the matter. In striving to separate superstition from real science and scientific research, we come on to many things that seem to stand about midway. One of the most familiar illustrations is this matter of the moon. Day before yesterday a very intelligent and skillful farmer told me he was very busy cutting down all the bushes on his farm; for he had noticed, for many years, that, when cut down during the last full moon in August, they were sure to die. May be I am mistaken about its being *full* moon. It was some *kind* of moon, any way, and it does not matter whether I have got it right or wrong. Now, so far as cutting bushes in the latter part of August is concerned, that part is all right and sound. At about this time of the year they have so nearly perfected their growth, they are not as apt to start out and grow up again, as if cut earlier; neither are they so likely to preserve vitality till another season, and start up in the spring, as if they were cut later. About the last of August is the time to clean out the fence-corners, etc. You may say, "Mr. Root, why should *you* presume to teach all the world, and go against the experience of old farmers?" I will tell you. Our agricultural experiment stations have been, for some years back, doing a wonderful work in this line. They have tested this matter in regard to the moon, and its influence on vegetation, in a way that settles it beyond question. If I am correct, tables noting the changes of weather, and the changes of the moon, have been kept up by our government for years; in fact, they have been compared, until the times that the weather changes and when the moon changes run up into many thousands. This work has been done by the wisest and most careful men we have; and their decision has invariably been that the moon has no influence whatever on the weather, vegetation, nor diseases of the human family. This latter point was settled by keeping some tables and statistics in our public hospitals. The question ought to be settled for ever. It is laid down in our books on astronomy, and in the text-books in our schools. But when you explain the whole thing to the average farmer, especially if he is fifty or sixty years old, although he may assent for the time being, he will go on planning his work by the moon, just the same as ever, for it has become a sort of second nature to him. The moon does have an influence on the tides. This is fully explained and understood in our scientific books; and therefore there is more reason in thinking it may affect the planting and digging of potatoes, etc., than in the old humbug about commencing work on Friday. And now here comes something that I wish to illustrate:

There are people, and very likely a good many among my readers, who insist that Friday is an unlucky day. Would these people dare to suggest to our great institutions of learning that they keep tables, such as I have mentioned, to see whether business ventures, etc., turn out more badly on Friday than on some other day? This, you see, brings the utter stupidity of the whole thing to light. A college or place of learning that would even *undertake* to demonstrate a thing so silly should have all its managers and pupils sent to an asylum for idiots.

We now come to this matter of sickness, disease, and death. I suppose that our readers are well aware that, among savage and heathen nations, they doctor disease almost entirely in a line with the wisdom (?) of the woman who would not set her hen on Friday. Their doctors have their whole heads filled with just such senseless jargon. One of our surgical missionary institutes worked a long time in a certain part of China, and failed to convert a single heathen to the gospel of Jesus Christ. They could not do a thing. The heathen insisted that their idolatrous rites were just as good as our religion. Finally an old man had a fall that injured him in such a way that a severe stricture of the bladder resulted, rendering it entirely inoperative. Of course, the heathen doctors went through their incantations, and prayed to their idols—consulted the birds and snakes, and I suppose you know just about what else they would do. Finally they went to the missionary doctor, and he at once relieved the man by a simple mechanical appliance—a catheter—and saved his life. A crowd of people followed the poor suffering brother, and saw the way in which he was cured. It was such simple, plain common sense that even the dullest savage intellect could understand it. It was a big thing for the missionary. Right on the spot, fathers and mothers accepted the Christian faith, and a school was formed to teach them *sense*. Now, we surely ought to have as much sense as these heathen; but when we quote such senseless jargon as, that a person who is better on *Sunday* will never get well, and stuff of that sort, we deserve to be sent away from the company of enlightened people.

Of late I have prayed more earnestly on this matter of disease and the remedy than on any thing else in the world. I have *begged* for wisdom—not only that *I* might get well, but that I might help in this work of eliminating blunders and superstition from real sense and wisdom. You may remember that Paul has several times spoken of things in regard to which God had not seen fit to give him light—that thorn in the flesh, for instance, which was never removed. Again, in the 7th chapter of I. Corinthians he speaks of certain things wherein he had received no light, as it were, from the Lord—he simply gives his own private opinion. Now, I presume I may be pardoned if I say that, in this matter of medicine, I seem to have had no direct answer to prayer. God has not seen fit—at least, so it seems to me—to give me any light in the matter as to whether we should continue to doctor our bodies with *medicines* or not. Several times I have thought I received so much benefit from a certain medicine recommended by kind friends that I have felt almost as if it were in answer to prayer; but on giving the matter a full and fair test, as our experiment stations test the value of fertilizers, etc., I am forced to the conclusion that each separate medicine in question had *nothing to do* with my feeling better or worse—I do not mean while I was confined to my bed by sickness, but since I have been enjoying tolerable health; therefore I say I do not *know* whether it is wisdom to take tonics and invigorators or not. So far as *I* am concerned, I am inclined to think that I have received *no benefit* from them whatever, and I have tried a great many that were recommended most vehemently. I think I may be pardoned, however, for saying this, that I don't believe God intended we should, as a general thing any way, make ourselves well by the use of medicines, either animal, vegetable, or mineral. I *can* say, however, with a clear conscience, and with perfect faith, that God has given me some most wonderful and striking answers to prayer in this matter of coping successfully with sickness and disease; and the answers have come along the line where common sense would seem to indicate they *should* come. I have been over the ground before so much that you probably know what I mean. Pure air to breathe, and plenty of it; pure water to drink, and plenty of it; free, unobstructed sunshine, and plenty of it; the right sort of exercise, and plenty of it, to develop energy and muscle to enable nature to cure the different organs of the body, in her own way; plenty of sleep;* and, lastly, summing up all the rest, as it were, perfect cleanliness—not only clean in body, but *clean in heart*. If you want to get *well*, commence with my favorite text that I gave in the last number, and one that still rings in my ears like music—"Let the words of my mouth and the meditation of my heart be acceptable in thy sight." Remember, also, "If I regard iniquity in my heart, the Lord will not hear me." Of course, you remember well what I said about being cured by using a horse and cultivator on Decoration day. In fact, few things I have ever written have called forth more comment and sympathy than this one article. In that case the answer to my prayer came in the line of some simple commonplace work right near my home. First, I needed faith in God; then the right sort of exercise. I very much doubt whether the use of the horse and cultivator, without faith that God heard and was pleased to answer my fervent prayer, would have done any thing like the amount of good I received from the exercise of that one afternoon. Similar experiences have come all along. Of course, I could not be spared to cultivate all the while; and although this is a healthy occupation, we are by no means to take it that it is the best occupation at all times and for all persons; but it has its place.

In my enumeration of things that had impressed themselves on my mind in answer to prayer, I mentioned first pure air, and plenty of it. Now, a plenty of it can not very well be secured without brisk exercise of some sort. So you see they are linked together. Again, with brisk exercise and pure air comes thirst. Water to drink seems to be a great luxury; and one who is worn out by nervous disorders and indigestion becomes very sensitive to impurities in drinking-water. I believe the whole world is now giving more attentien to this matter of pure and wholesome water to drink than it ever has before. Some time ago one of our agriculturul papers asked if it paid for *farmers* to take a vacation; and they called upon several prominent men to give their experience. One man said that a vacation of a few weeks once gave him almost a new lease of life. He visited a relative in some distant State. On the premises was a spring of pure soft water that seemed to him more delicious than any he had ever tasted before. He went into the harvest-field and helped them out in their work, and drank great quantities of this spring water. It acted like magic on his worn-out and run-down system. Chronic ailments of years' standing disappeared in a few weeks. We have all heard of cases of similar experiences. Many leading physicians are recommending large quantities of *hot* water as a beverage, to be drank either two hours before or two hours after a meal. Drink as much as you can, and as hot as you can. This is one of the uses of water in different forms, for different conditions of the system. Sometimes, when one is continually thirsty, and is distressed by drinking water either hot or cold, he can swallow almost any quantity of pounded ice, putting it down as fast as he can swallow it, in pieces as large as he can swallow. I have frequently had a disordered stomach made sweet and clean in just this way; and I do not know that I ever experienced any bad result from swallowing great quantities of ice in this way. It seemed to cool off the stomach, allay the fever, break up fermentation, and, in fact, I felt much as one does when he has had a good wash during a hot summer day. The washing was *inside*, however, instead of external. The internal water cure has been helpful to me many times. On one occasion, for several days I felt a pain at the base of my spinal column. It kept there day and night, and I began to feel as if I could not stand on my feet much longer, unless I could get relief. I thought of going to a physician. Instead of that, however, I concluded I would try a very thorough cleansing of the colon, with a large quantity of water as warm as I could bear it. After persistent effort I succeeded in removing a mass of trash, among which were quite a good many blackberry seeds from berries I had eaten several days before. The relief was as prompt and plain as if I had washed something out from between my toes, that had been making my feet sore and lame. Perhaps nature would have succeeded in expelling that foreign matter without the use of the water; and may be a heavy dose of physic would have done it in the same way; but I greatly preferred the use of the water, applied in a common-sense way. The question might arise, "Are not blackberries, which have been so much lauded, unwholesome after all, with their quantity of gritty seeds and skins?" I do not think that follows. They may be unwholesome to persons of weak or feeble digestion, and they may lodge in some part of the digestive apparatus, as any other thing might so lodge. Perhaps, also, the right kind of very brisk exercise might have enabled nature to dislodge the hurtful refuse. The great point to me was this: Many people have distressing backaches. They put on plasters, and take tonics and stimulants. It seemed to me as if my spine were really diseased or giving way, whereas the whole trouble was something almost as simple as a little sand or gravel between your toes, only the latter comes to us externally, where we ought to have been ashamed to allow any such accumulation. In the former, it was away where the scrutiny of the human eye could never detect it.

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* While Mr. Langstroth was visiting us, one day at dinner he was commenting on my good fortune in being able to sleep just before dinner and just before supper time; and then he repeated, in his inimitable way, the following lines:

For if ignorance be indeed a bliss,
What blessed ignorance equals this,
To sleep and not to know it!

I now wish to close this paper with a description of one of the brighest and happiest experiences that ever came in this line. You will notice that it includes pretty much all I have mentioned in the foregoing. Two or three weeks ago I was feeling very much as I did one year before that time—the time when I was laid up with nervous malarial fever. Even the cultivator and the work in the garden did not seem to meet the case. My strength was failing; I was getting thin (119 lbs.) and poor. For the first time in my life—that is, while able to be about, it seemed a task to go on foot the half-mile to where our weekly prayer-meetings are held, and I had stayed away for several times. I feared another attack of fever. Such exercise as I had taken with the cultivator was almost too much for my strength, for, in fact, I hadn't any strength worth speaking of, nor appetite either. I began to pray. I plead the Bible promises. I told the Lord that all evil or wrong purposes or longings had been put aside, and that it was that I might teach others that I begged him to give me wisdom in the language of our text. The answer came in a very unexpected direction. Ernest has, for two or three years past, been urging me to try a wheel. He said it would take me off from my feet, and relieve me of the burden of bearing my own weight. He said it would also carry me away from the factory and grounds, and from business cares; it would divert my mind, and give me wholesome exercise while using a set of muscles that were, perhaps, almost comparatively new and unused. But I objected, on the ground that I was too old (52) and stiff and feeble any way, even if I knew how to use the wheel. And so matters stood for a couple of years. I do not just know what prompted me to think of trying a wheel again during this present month of August. I know I had been praying a good deal; but the idea that the wheel should have any association with an answer to my prayer never entered my head until I began to receive benefit from it. Perhaps I might remark here, that, toward forty years ago, my brother and I tried to build a rude velocipede. Of course, it did not work; but when I gave it up I declared to the rest of the family that the day would come when people would go faster than a horse, with a machine made after that fashion. Then I turned my attention to roller skates, said skates being manufactured by sawing little wheels from the end of spools, and screwing them on to a block. This only resulted, however, in bumping my poor boyish nose; but when I relinquished both projects with tears in my eyes, I assured my good mother that people would some time both *ride* and *slide* on the plan I was then working on. When the *Scientific American*, toward twenty-five years ago, gave a picture of a French velocipede I wrote them at once; and as soon as a machine could be purchased on American shores I was the happy owner of one of them. This all happened before GLEANINGS was published. From this you can see that it did not take very long for me to learn to run the machine. The only trouble was in getting on and off. I got off without very much trouble, or, at least, tumbled off, and let the machine go where it wanted to; but to get on was such a task that I surely should have given it up in despair had not Ernest held on, and plead and entreated. While I am about it, I think I will tell you plainly and freely of my discouragements in this line. I was weak and nervous; and to think of springing so high while the treacherous machine was in motion jarred on my nerves to such an extent that I was really afraid it would make me sick. I felt much as I did when I had my last tooth pulled; and I might as well confess to you, that again and again I *prayed* the good Father to give me strength and courage, and tranquility of nerves, to make the effort. After that brief, simple prayer I made better progress. When I tried so many times that I was almost ready to give up, then came the prayer, and almost immediately afterward I was seated securely, and gaining confidence with every success. One day I went down to see my mother, who lives half a mile away. I had been feeling very badly that afternoon, and had been praying with more than usual earnestness. When I tried to get on the wheel to come home, as the ground was rough I did not get it started readily. Finally I thought I would turn it in the opposite direction. Stangely enough, this time I got seated, without a bit of trouble. At the end of the road I proposed to get off and stop; but the wheel took a fashion of its own, and started off on a diagonal road down a long steep hill. "All right, old fellow," said I; "if you can't go *my* way, suppose I go *yours*." Before I reached the bottom of the hill, I had learned to coast; and, to my great surprise, I succeeded, without very much effort, in propelling it up the next rise. Pretty soon I was off in the country; and with the blood tingling to the very ends of my fingers and toes, skill came to me as if by inspiration. I suppose memory was beginning to "catch on," and I managed the modern wheel very much as I did the velocipede so many years ago. I went down to the river and back; and by the time I reached home I felt more like riding further than even sitting down to rest. My faithful teacher (Ernest), however, insisted that I should not overdo. I felt confident, however, that I could make a ten mile trip to some scenery in our county, which I had never visited. On the day appointed, however, Aug. 16, my old troubles had almost all returned, with some new ones. I felt sick, weak, and low-spirited. I remember very distinctly how I prayed as I sat on the doorstep by myself, early in the morning. My feeling was, that, if any happiness or enjoyment came to me that day, it would have to be something little short of a miracle. Could it be possible that one feeling as I did could receive relief simply by open-air exercise? I thought of Wilson's Peak, and of the horse and cultivator, as well as the wheel; but I felt sure that I was not well enough for any one of the three. However, I decided, after breakfast, to try a short run on the wheel, and see how I felt. The first part of the journey was down hill; and as the morning air whistled by me I began to gather strength and hope. Then came the tussle of climbing hills. I think I never breathed so hard, nor exerted myself to the *full extent* of my strength, as I did on that morning. But something began to tell me that it was not hurting me a bit. My mouth was wide open, and my lungs were expanding wider than they had before for years. In fact, it seemed as if I could feel them letting themselves out and shaking out the folds as we shake out the folds of tissue paper of a toy balloon. Strength was coming nay, it *had* come. I remembered the words in the book of Job, where the horse is described — "He paweth in the valley, and rejoiceth in his strength." Well, in one sense *I* was "pawing in the valley;" and as I went up the hillsides out of the valley, I rejoiced in my new-found strength as I rarely *ever* rejoiced in any thing before. You may be sure that I was thanking God for the answers to my prayer.

At just 11 o'clock I arrived at a neighboring town, eight miles from where I started. Although I felt more like going on than taking any rest, I knew that Ernest and Mrs. Root, were they present, would insist on my stopping, and taking my accustomed nap. What a pretty hotel met my gaze as I came into the town! Yes, every thing was beautiful, for God's love and a new faith in *him* were in my heart. The men-folks were away somewhere, but the good landlady ushered me into a pleasant room, gave me a lounge almost exactly like mine at home, and a nice clean pillow. The first thing I did when the door was closed was to fall on my knees and pour out my heart in thanksgiving and praise for the wonderful strength, and through it new life, that seemed opening up before me; and while I prayed, there came a bright, clear, distinct promise of new blessings and evidences of God's love, to be met before the day should close. I do not know whether I have spoken of this to you or not; but it has been one of the bright things through all my Christian experience, to feel, while I was praying, that the answer had come and *was* coming. I think it was President Finney who says in his biography, that he has had this feeling until, if one were to sum it up in words, it would be as if God should say, "There, there, dear child; do not pray any more about it just now. You shall have all you ask—yea, and more too." I am well aware that, to a class of my readers—perhaps a large class—this will sound very strange, and may be you think I am as superstitious as some I have condemned so severely. Not so, my good friend. God is our Father. We are the work of his hands; and it were strange indeed if he who planned the universe, and placed us at its head, should lose interest in or oversight over us. This thing I have told you about is *right in line* with Bible teaching: "Whatsoever ye shall ask in my name, it shall be given you;" "Before they call, I will answer; and while they are yet speaking, I will hear." I placed my head on the pillow, at peace with God and at peace with all the world; and before I knew it, came happy, peaceful oblivion. I slept almost an hour; and, what a dinner I *did* eat when I awoke! Of course, the wheel and my unusual exercise had much to do with it; but it seems to me that in none of the great cities and in none of the high-priced restaurants did I ever enjoy a better dinner than that one. Just the day before, when dinnertime came, all I could possibly eat was a part of a small potato and a little milk; but on this day I told my good friend, when I came to pay my bill, that she ought to charge me something extra on account of the appetite my ride had given me. When she said it was only 25 cents, and nothing for the use of the lounge, it seemed to me like trespassing on good nature. I can not take space to tell you all the events of that afternoon. But I wish, however, to tell you that I found a spring of pure cold water coming forth from a beautiful cave in the rocks, and that the water filled the bill to the fullest extent of my imagination when I lay awake nights thinking of the soft-water springs of my childhood. I drank the water by cupsful; then while further up in the woods I put my mouth down to the mossy trough and drank again until it would seem a miracle that one could drink so much and not be harmed. The man who owned the spring, however, said that everybody always drank as much as they liked at that spring.

I made the run home easily; in fact, as I came through the streets of Medina I felt as if I would rather make another run of twenty miles (the distance I had covered) than to do any thing else. Mrs. Root and others felt sure that a reaction would follow; but none has come yet. I feel stout and strong and well; but when the roads are muddy, as they are to-day, I feel a craving for that exercise on the wheel. I long to coast past the fields and through the green woods. Now, don't you see that it is not pure water *alone*, nor pure air; it is not being outdoors, and it is not outdoor exercise, nor even *sleep;* but it seems as if the answer to prayer had come by taking all these together. My past ill health has very likely come from having too many cares — possibly from being too much on my feet. A certain set of bones and muscles, and may be a certain amount of nerve power, has been worn out and used up. But this new method of travel, which God in his infinite mercy and goodness has seen fit to give to the world—that is, he has given it as a reward for close study and application — this new gift of his, lifts us from our feet and spares us the necessity of bearing these weary bodies of ours; yes, a set of muscles that have heretofore been almost entirely unused, are brought into play, and are developed; and at the same time the weary brain worker is carried away from the scene of his labors, and his mind is kept so busy in a new direction that he has the very best possible chance of taking the pure outdoor air, and of expanding his lungs while he develops his muscles. And then when he has ridden until every thread of his clothing is wet with perspiration, he is in just the best possible trim to use great quantities of spring water in just the way God intended it to be used; namely, to cleanse and purify and wash out the whole system.

Now, dear friends, I am not laying down laws or rules for anybody. Some may be benefited by the use of a wheel, and some may not. I am simply trying to tell you this: God *will* give you wisdom, as in the promise in our text. Yes, he will give us wisdom to care for these bodies of ours that are so often racked with pain. And I feel perfectly safe in saying that our emancipation from sickness and disease is going to come, not through drugs, nor even expensive articles of diet; nor, as a general rule, in traveling to distant climes. It is coming in the line I have indicated: Pure air, pure water, outdoor sunshine, refreshing sleep, and a sort of exercise of both brain and muscle a little out of the line we have heretofore enjoyed.

If any of you lack wisdom, let him ask of God.

CAPITAL AND LABOR.

We copy the following from a periodical called *Business*. It seems to voice our sentiments a little better than any thing we could put into words ourselves:

> I am not like other writers on this subject. They all know what is the matter, and try to settle it. I don't know exactly what is wrong, and there are several questions raised by the issue which I can not settle. It is intimated that labor is not getting its rights, its fair share of the profits; but when I ask that the labor in question be specified pointed out so that I may examine it—I find it is the labor that uses hands and muscle, and works eight, nine, or ten hours a day with no care or responsibility between times as to property or management of affairs. Nothing is said about the labor that uses the brain, that plans and manages and directs, nor yet about the labor that invents and organizes.

Nothing is said about the higher grades of labor, apparently, but a great deal is urged for that which is comparatively crude and unintelligent. Capital is denounced even when it is found in the honest possession of the one who created it by the skill of his own hands and brain; and the intelligence which is capable of managing savings so that the little money in hand shall help to make more money is beginning to be looked upon as almost criminal.

GLEANINGS IN BEE CULTURE
A Journal Devoted to Bees and Honey and Home Interests.
Illustrated Semi-Monthly
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They that wait upon the Lord shall renew their strength; they shall mount up with wings as eagles; they shall run and not be weary; and they shall walk and not faint —Isa. 40: 31.

The following stanza, by E. L. Pratt, of Beverly, Mass., after "How doth the busy bee," etc., is so unique that we gladly give it position at the head of this column.

Now doth the busy little moth
Improve each shining minute
By hunting up your nicest comb
And laying millions in it.

In the articles on the smoker question that have appeared of late in the *Bee-keepers' Review*, the Bingham seems to have carried off the palm.

Like ourselves, the bee-keepers of Australia are preparing to grapple with the question of adulteration—how it may be ferreted out, and how it may be put down.

Fixed distances are being introduced in Australia by quite a number of prominent bee-keepers. They have come to about the same conclusion we have in regard to self-spacing frames and non-burr-comb top-bars.

On page 632, Fr. Greiner notes, among other good things in his Cobs and Kernels, the fact that honey evaporated by artificial means is just as good as that evaporated by the bees. I agree with Dzierzon, that it seems the bees must have some process of separating the honey from the water quicker than by the slow method of evaporation. I allude to this in the A B C book, in describing an experiment that I made while the bees were working on figwort.

A. I. R.

What an excellent bee-paper the *Bee-keepers' Review* is! It seems to be improving month by month. We have wanted to pat Bro. Hutchinson on the back several times of late, but we were afraid that our readers would begin to think that Gleanings and the *Review* were somewhat under one management. Not a bit of it. Both journals are managed and conducted separately; and although there may be a rivalry, it is, in the language of Bro. Hutchinson, "not an unpleasant one."

A few days ago we were talking with a gentleman who kept bees many years ago. We referred to the poor seasons that bee-keepers had been having for the last four or five years, and asked whether this was to continue. Our old bee-keeping friend then related that, away back in the 60's, bee-keepers had four or five poor honey years in succession, followed by many years of good honey-flows. He also alluded to the fact that certain agricultural products were subject to cycles of four or five poor years, followed by good years. Well, *our* cycle of poor years, we are in hopes, is about up; at any rate, we shall keep on hoping; for "hope," says Eugene Secor, "is the bee-keeper's best bank account."

THE FOUL-BROOD QUESTION IN AUSTRALIA.

Mr. James Pender, of Tallarook, Australia, in a well-written paper read at a bee-keepers' convention in Australia, takes the ground that foul brood is not necessarily a curse to the bee-men of that country. He argues that, if it were not for the ravages of that disease, there would be thousands of box-hive bee-keepers who would compete with the product from well-regulated apiaries; that the disease does not trouble greatly the expert bee-keeper, and hence there is little or no competition in the way of prices cutting from box-hive men. Taking it all in all, he thinks foul brood is a friendly enemy; and therefore he questions whether it is desirable to have a foul-brood act, because there is already law enough to compel apiarists to remove such a nuisance as foul brood in the vicinity of neighboring bee-keepers. There may be something in Mr. Pender's position; but we should feel safer with the foul-brood act, so that we could "press the button" and let the foul-brood inspector with the arm of the law "do the rest."

ANOTHER BICYCLE TOUR AMONG BEE-KEEPERS.

Just about the time that our last issue finds its way into the homes of the bee-keepers all over the land we shall be starting on another bicycle tour. Our steed will be a Victor pneumatic, and we expect to make a tour of 300 or 400 miles among bee-keepers and friends in Northern Ohio and Southern Michigan. Yesterday, Aug. 16, we rode 55 miles, and the same distance the day before. To-morrow we are going to try to cover 75. Oh ! but it is fun to come and go when you please—no horse to feed, no railroad tickets to buy; no bills of any kind to pay, except, perhaps, now and then for a *good big hearty* breakfast, dinner, or supper at a hotel.

But perhaps some of the friends think we ought to have given them notice before this in Gleanings. Well, the fact was we did not know when we were going to start, nor exactly our route. All depends upon the weather and the roads. We disappointed, two summers ago, so many of our friends by not making them the expected call, that we thought this time we would make no promises. *We* — who's *we?* Why, don't you know? It is E. R. R.

Oh, yes ! we will try to send home some bee-notes.

THAT NEW BEE-DISEASE.

On page 594 of our last issue we referred to a new bee-disease that resembled foul brood in many respects. We not only had cases of it in our own yards, but had reports of the same from others; and we there stated that it was quite probable that this disease had been mistaken for real foul brood on the part of a good many. Here is a letter just at hand that is a sample:

> The foul brood that I made such a fuss about last spring has all disappeared. I found in all about four hives affected, I destroyed two, and one of the two was in a bad state, half of the brood being rotten. Your editorial in last Gleanings shows that you have been troubled the same as I.
>
> Worthington, W. Va. L. H. Robey.

While we should not put aside our usual vigilance, we do not on the other hand want to destroy colonies when they do not have the contagious disease. Very recently we ran across some old drone brood that had been put in a hive and confined by itself with no bees. It had lain, perhaps, for two or three weeks when we discovered it. Out of curiosity we uncapped some of the cells, and, behold, it looked for all the world like foul brood. It had that brown coffee color, and the larva was dead and somewhat shriveled up. It lacked the two distinctive chacacteristics of the real virulent disease. It was not ropy, nor did it have the peculiar odor that belongs to foul brood.

WHEELS FOR WOMEN AND GIRLS.

OUR daughter has for several years suffered from nervous debility and indigestion, especially about the time her school closes. She is now fourteen years of age; but she always has a hard pull to get through her studies toward the close of the term; and on several occasions we have been obliged to take her out of school, thinking it best to incur the risk of stopping her mental rather than physical development. Doctors were consulted; wine and pepsin, and other things from the drugstore, were taken "before meals" and "after meals," year after year, as the end of the school term came round. She couldn't eat this, that, and the other, without repenting that she had not heeded he mother's repeated cautions.

Well, the wheel Ernest selected for me is a ladies' Safety pneumatic tire. He said I was so light that a ladies' wheel would answer every purpose, and he felt quite sure that the girls also would learn to ride, although the rest of the family did not think it very likely. Well, Caddie climbed on to the wheel almost as soon as she saw it; and the machine actually behaved as if it had a liking for her. When *I* touched it, the wheel was sure to pitch one way and myself the other, and we both got into the dirt. Caddie, however, stepped on as nimbly as a kitten, and commenced to ride at once. And now comes the most important part of it. Her nervous troubles have all disappeared; her muscles are getting strong, and she eats whatever she chooses, even pickles, with impunity; and she will make a five-mile run on a common country road at a speed that puts some of the big boys "on their mettle" to keep up with her. I am well aware that I am giving a heavy commendation of the wheel in this present issue; but I tell you, good health is beyond price. If somebody had told me, a month ago, that the time would ever come when I could exert the amount of strength that I did this forenoon, and at the same time rejoice in it, I would not have believed it possible. It seemed to me, when I was riding at the rate of six or eight miles an hour, that there was within me a great reservoir of strength and energy almost untouched. I presume likely it comes by bringing into play a set of muscles that have been through all my life almost unused.

A. I. R.

"SECOND WIND"—LATEST FROM THE WHEEL.

I TOLD you about getting my second wind while climbing Wilson's Peak, in California. Well, I am just now making some wonderful discoveries—at least, they are discoveries to me in this second-wind business. Yesterday (Aug. 23) I started on my wheel for a thirty-mile trip. I did not get business attended to, the outdoor hands looked after, selling produce, etc., until about half-past nine, and by that time I felt pretty well used up, mentally and physically. Had I not judged from past experience, I should have concluded that I was too sick to ride a wheel or to do any thing else unless it was to go and lie down on the lounge and take a nap. However, as I had made my arrangements I started off. At the end of the first five miles I seriously meditated turning round and going back. During the last mile the exertion of going up hill had made me pant to such an extent that I remember of having my mouth wide open, and that my heart was beating like a trip-hammer. I was taking immense breaths of air,[*] for I could not go up the hills without tremendous breathing. A little after this, the second wind came in. I was sweating profusely at the time, when I felt strength coming—yes, a great flood of it. Under its stimulus I began to make the wheel just buzz, up hill and down; and the faster I went, the larger seemed the reserve force. Why! I felt like a small steam-engine, with muscles of iron and nerves of steel. By 11 o'clock I had reached the point where I proposed to take dinner. I did not feel like stopping at all, but I had been counseled so much about saving this energy that I went into the hotel and lay down. By trying hard I managed to sleep just ten minutes by the watch, but it took three-quarters of an hour to do it. My strength and spirits held out all day long, and I made my thirty miles, and arrived home before five o'clock. This morning I do not feel a bit stiff nor used up, but quite the contrary. Now, there is something simply wonderful about this. Through the influence of what might be called *excessive* outdoor exercise I have got entirely rid of all my aches and pains and nervous prostration. I can eat every thing and drink every thing that God intended we should eat and drink. At present it seems there *may* be no further need of my naps before dinner, and there is almost no further need of the internal water cure. I am a big strong man, and Nature is performing all her functions without any artificial help of any sort. To give the credit all to the *wheel*, or to *riding* the wheel, would, of course, be a blunder. Working in the harvest-field, working on a thrashing-machine, and a thousand other kinds of outdoor employments, would probably answer almost as well for the majority of mankind. For those who work indoors, however, and especially for those who do severe mental work, I do think the wheel is going to prove one of God's most precious gifts to suffering humanity.

I wish to close this editorial with an extract from Prof. Huxley, that I tore out of the *Rural New Yorker*. Its application is obvious:

> I have long been convinced (and to a great extent by personal experience) that what people are pleased to call "overwork" in a large proportion of cases means under-oxygenation and consequent accumulation of waste matter, which operates as a poison. The "depression" of overworked, nervous organizations is very commonly the "oppression" of some physiological candle-snuff not properly burned.

And now I want to say, may God in his great mercy bless the message I have been trying to give you through this number of GLEANINGS. Long ago men gave up the fruitless search for the fountain of youth; but it looks to me as though something pretty nearly equal to it were coming. It is coming along the line of the *second wind*; and while I say it, I fear that many there be who may *never* find it at all. They have not the patience and perseverance to get on the right track and to hold on. And another thing, dear friends: When you are struggling against *temptation* and *sin*—it may be agsinst the cravings of a depraved appetite—let me beg of you to *hold on* and wait for the second wind. It is *there*, for God *placed* it there; and if you persevere, even though it may make you *pant* and *blow*, you *will* reach the goal, and gain faith and strength in so doing.

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[*] An unusual quantity of *oxygen*, mind you, but it wasn't "Oxygenated Bitters," nor any sort of "drugstore oxygen;" and, furthermore, there has never yet been any reaction, even if it is a wonderful stimulant. After that hard tramp up Wilson's Peak I received permanent benefit that I felt more or less for ten days or two weeks.

JAPANESE BUCKWHEAT.

JULY 30 we sowed about an acre of our rich market ground, and in just one week it was up so as to make the ground green. In two weeks the ground was entirely covered so as to be invisible, on account of the foliage. In three weeks the bees were working on an occasional blossom; and in four weeks (last Saturday) all the field was white, and the bees were humming about as lively as I ever saw them on a buckwheat-field. We, however, made a mistake in putting in so much seed; for on our very rich ground every stalk would branch out if it could; and I am of the opinion that half a bushel of seed, or even less, per acre, would give a better yield than any larger quantity.

A. I. R.

THE PECOS VALLEY.

THE following postscript to a letter illustrates vividly how differently people may look at certain things. Some may be pleased with a new country, in spite of its many disadvantages; others may see the disadvantages and nothing else, and so be very much disgusted.

Brother Root:—I have been in New Mexico, and find it no good for a poor man, and no bonanza for a rich man, water being scarce and hard to get, and good drinking-water rare. In Eddy, it costs 35 cts. per barrel. It is very sandy in and around Eddy, and strong in alkali, and sand storms are frequent. That country is too much advertised. Many are going there, and many are leaving—some not even staying there over night. ANDREW CRAIG.

Abilene, Texas, Aug. 22, 1892.

Even though every thing that has been said in favor of the Pecos Valley be true, I have all along had a sort of feeling that only the favorable features were mentioned; therefore I am glad to give place to a letter from one who has been right on the spot, giving us the unfavorable side.

A. I. R.

THE SUFFERERS IN INDIA.

SINCE our article and picture in the August 1st issue, we have received in contributions the sum of $12.00 for the starving brothers and sisters. Funds may be sent by postal order to Frank Van Allen, Medical Missionary, Madma, India; or, if more convenient, you may remit directly to us, and we will forward.

SPECIAL NOTICES.

We have a few hybrid queens which we will dispose of, as long as they last, for 40 cts. each.

DISCOUNTS FOR EARLY ORDERS.

We call the attention of our customers to the fact that, on such goods as you find on pages 10 to 30 of our price list that you buy for next season's use between now and Dec 1, a discount of 5 per cent may be deducted. This applies to goods of our manufacture only, which are found between pages mentioned.

DAMAGED BOOKS BELOW COST.

Owing to a leak in the water-tank in the tower above our vault, the walls became damp, and a few copies of our paper-bound edition of the Christian's Secret of a Happy Life are a little soiled by mold. We offer them by mail postpaid for 15 cts. each; or by express or freight with other goods, singly or in quantities, at 10 cts. each; regular price. 25 cts.

SCARCITY OF WHITE DUTCH CLOVER SEED.

At present this seed is worth 30 cts. per lb. at wholesale, and 40 at retail. I am very glad to see one thing more that farmers raise bringing a good price; and this thing, or something like it, has happened so many times with the different kinds of clover that I think it would behoove some bee-keeper to make a business of having some seed on hand so he could reap the advantage when these seasons of scarcity occur. It does not hurt my conscience a bit to take 40 cts. for a pound of clover seed, so long as there is none to be had anywhere else at a less price. If wanted by mail, add 10 cts. per lb. extra for postage and packing.

STANLEY HONEY-EXTRACTORS.

Last spring we acquired the right to make these machines, and at the same time we bought what stock Mr. Newcomb had on hand. We have offered these at 25 per cent off the regular prices, in the hope of working them off to give us a chance to make some ourselves. Quite a few have been sold, but we still have five or six two-frame machines, and ten or twelve four-frame, with crank directly on the shaft, and no gear. The prices at which these have sold was $12.00 for the two-frame and $20.00 for the four-frame; $8.00 extra for the horizontal gear. We are still desirous of closing out this stock; and as a further inducement we will sell the two-frame for $8.00, and the four-frame for $12.00—almost half price. We will put on our bevel gear, 3 to 1, for $3.00 each extra. If anybody is in want of one of these machines he will never have a better chance to buy one cheap. We bought them low, and can afford to sell them as above rather than to keep them over till another season. Remember, this price lasts only as long as the old stock lasts; for when we have to make them new we must charge full list price.

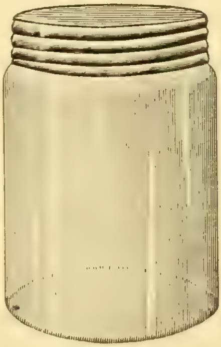
LAWN-MOWERS.

A month ago we offered lawn-mowers at reduced prices, to work down our stock rather than carry it over to another season. A good many have taken advantage of the offer; and one size, the 18-inch Globe, are all gone We still have plenty of the 10 and 12 inch, and a few left of 14 and 16 inch. The prices we offered then are as follows:

10-inch Young America	$3.00
12-inch " "	3.50
10-inch Globe	3.75
12-inch "	4.00
14-inch "	4.30
16-inch "	4.75

Above prices are very nearly cost, and available as long as the stock lasts.

NEW HONEY-JARS.



We have added to our stock of glass jars for extracted honey the one shown adjoining. It is straight up and down, with a tin screw top, with opening in the top nearly the full size of jar, making it easy to take out candied honey. The top edge is ground so that they can be sealed with a rubber band if desired. There are six sizes made, but we keep only two—No. 200, holding 1 lb. of honey, as shown, and No. 500, same diameter, twice as long, holding 2 lbs. Prices, without rubber rings, will be as follows: No. 200, holding 1-lb., 7c each; 60c for 10; $7.00 per bbl. of 12 doz. No. 500, holding 2 lbs., 12c each; $1.00 for 10; $6.50 per bbl. of 7 doz.

SQUARE CANS FOR EXTRACTED HONEY.

I believe bee-keepers generally are learning more and more the advantage of putting up extracted honey for shipment in these square cans. Honey in square cans handles much more satisfactorily than in any other package, according to our experience. We are prepared to furnish you the square cans, f. o. b. at Conneaut, Ohio, St. Louis, Mo., or from here, at the following prices:

Two five gal. cans, boxed with 1½-inch screws, each, 75c; 10, $7.00; 100, $65.00.

Two five-gal. cans, boxed with 1½ and 4 in. screws, each, 85c; 10, $8.00; 100, $75.00.

One five-gal. can, boxed with 1½-inch screws, each, 45c; 10, $4.20; 100, $40.00.

One five-gal. can, boxed with 1½ and 4 inch screws, each, 50c; 10, $4.70; 100, $45.00.

Ten one-gal. cans, boxed with screws, each, $1.50; 10, $14.00; 100, $130.00.

One hundred one gal. cans in one box, $12.00.

GALVANIZED-WIRE POULTRY-NETTING AND FENCING, THE BEST MADE AT THE LOWEST PRICE.

We handle only the G. & B. brand, which we consider the best made, as it is made of wire fully up to gauge, and has three-strand twisted-wire selvage, while other makes have only two. We have secured a carload from the factory, at a special low price, which we are able to sell lower than you can buy it anywhere else of equal quality, and lower than we have ever sold it before, though we have been getting more for it the past two years than we did in 1890. This carload that we have purchased is all 2-inch No. 19 netting, the size generally used for poultry. It was made nearly a year ago, and has lost some of the bright luster of fresh new goods; and it was for this reason alone that we bought it lower and are able to sell it cheaper. It is guaranteed equal in every respect to fresh new goods of the best quality, except in luster, which practically is of no account, because the brightest netting becomes dull in a few weeks after being put up. We have in stock all widths from 12 inches up to 60, which we can furnish at the following prices. All shipments must be made from here. We can not ship from New York or Chicago at these prices; but as we are able to secure through rates to almost all points from here, the freight will be little if any more than if shipped from either city.

Rolls 150 ft. long.	1 roll.	5 rolls.	10 rolls.
2-in. No. 19, 12 inches wide	$1 00	$ 4 50	$ 8 75
" " 18 "	1 50	5 75	12 00
" " 24 "	2 00	9 00	17 50
" " 30 "	2 50	12 00	23 00
" " 36 "	2 90	13 50	26 00
" " 42 "	3 40	16 00	31 00
" " 48 "	3 75	17 50	34 00
" " 60 "	4 75	23 00	44 00

The lot includes over 600 rolls, most of which are 48 inches wide, the usual size used. This price will last only as long as the stock lasts. You will do well, therefore, to order early. The above prices are less than the wholesale quotations to-day on netting not one whit better, if as good. If you want other sizes, or shipment from New York or Chicago, write for our special 20-page netting catalogue, mailed on application.

PRICE LIST OF JONES LITHOGRAPH LABELS.

25 per cent reduction for 60 days from the following:

Name of Label.	Size in Inches.	Price, 100	Price, 1000	Postage 100	Postage 1000	Print'g Add's 1000	500	250	100
5-lb Jones Lithogr'h.	6¼ x 14	1 00	9 50	.12	1 20	1 00	75	50	30
2½ ditto	3½ x 14	.60	5 50	.6	52	1 00	75	50	30
1 ditto light.	4¼ x 9½	.50	4 00	.4	35	1 00	75	50	30
1 ditto darker.	4¼ x 9½	.50	4 00	4	35	1.00	75	50	30
½ ditto.	2¾ x 8¼	25	2 00	3	28	.90	75	50	30
⅓ ditto	2 x 7½	25	2 00	3	25	90	75	50	30
¼ ditto	1½ x 5½	.15	1.00	.2	18	90	75	50	30
E ditto.	2½ x 16	50	4 50	4	36				
F ditto.	2½ x 16	.50	4.50	4	36				
G ditto	2⅜ x 13½	55	5 00	5	42	1 00	75	50	30
H ditto.	2¼ x 13½	55	5 00	5	42				
I ditto	3¼ x 14	.60	5 50	6	52	1.00	75	50	30
J ditto	2¼ x 16	.60	5.50	6	52				
Abbott Oval Lith'ph.	2⅝ x 2⅞	30	2 00						

In order to work down our stock of these labels we offer a reduction of 25 per cent from above prices for the next 60 days, or as long as stock lasts. We have the largest stock of the 1-lb. light and dark, and they are a very good size for tin pails of almost any size.

Those of you who have never seen these labels can form little idea how handsome they are; and that you may see them without much expense we will put up a sample package of 1 of each kind, with one dozen of the last named, and mail postpaid for *ten cents*. Eight of the above may be divided into 2 and 3 labels each, so that you can get a small lot (over 30) of handsome lithograph labels, no two alike, for only ten cents. These sample packages would be very good for labeling a small fair exhibit. They would at least add variety. We can not, of course, print your name and address on the sample package or any number less than 100, and those opposite which we give no price for printing, have no blank place for such printing, and hence can not be printed. All the above are ungummed. You can not get lithograph or many-colored labels on gummed paper.

BUSHEL BOXES.

It is nearing the time when potatoes, tomatoes, onions, and other special crops must be taken care of; and those who handle them will be (or ought to be) considering the easiest, cheapest, and best means of doing so. T. B Terry has conclusively shown, in his admirable little book, the A B C of Potato Culture, that potatoes bring a better price, can be handled with less work, and better in every way, by using bushel boxes. More and more each year are learning the truth of Mr. Terry's reasoning, and some are also finding out that these boxes are equally valuable for handling other crops, such as onions, tomatoes, cucumbers, melons, etc. We make and keep in stock three styles of these boxes, as follows:

All-slatted bushel box, per crate of 15	$1.50
Slatted " " " " " 12	1.50
Galvanized bound bushel box, per crate of 12	2.10

If none of these is to your notion, we are prepared to make any style you want, in any quantity (not less than 100), at very low prices. We use basswood, which holds nails without splitting, and is lighter than any other wood we could use. Dealers or agents wishing to work up large orders will do well to write us for special prices.

Harvest Excursions

—WILL BE RUN ON—

August 30th, Sept. 27th, and Oct. 25th,

—TO THE—

Pecos Valley

The Fruit Belt of New Mexico.

Tickets may be bought at any important railway station, in the Northern or Eastern States, to

EDDY, NEW MEXICO,

and return—**good twenty days**—at

One Fare for the Round Trip.

Don't miss this opportunity to see the **richest** and **most fertile valley**, and the most complete and elaborate system of Irrigating Canals in the United States. For particulars, address

G. O. SHIELDS, Eddy, New Mexico

Please mention this paper.

A Colorado Bee-Ranch and Fruit-Farm for Sale at a Bargain.

I hereby offer for sale my ranch of 150 acres, including 120 stands of bees in 70 ten-frame Simplicity and 50 Dovetailed 8-frame hives, Simplicity size, all transferable; also extractor, combs, supers, and every thing needed for comb honey. Eighty acres are in alfalfa and 40 in grain; full water-right; plenty of water; house of seven rooms; ice-house, cellar, etc. I will sell all in one piece or in tracts. I have apple and peach trees in bearing. The land is all suitable for fruit, being situated in the fruit-belt; alfalfa all around. My market is all within 100 miles. The land is 1½ miles south of Delta. Full particulars will be furnished on application.

MRS. A. A. HODGDON,
Delta, Colorado.

Please mention this paper.

QUEENS AT COST!

To close up our surplus stock (this season) of Gray Carniolans and Golden Italians QUICK we are offering choice queens at the following low prices: Tested queens, $1.00; untested, 50c. Now is your time to get a fine queen at cost. Our queen-rearing apiaries are 4 miles apart, and are near no other bees. Both races are bred for BUSINESS. Give them a trial and they will convince you. Address

F. A. LOCKHART & CO., LAKE GEORGE, N. Y.

Foundation Reduced 3 cts. Per Pound.

SECTIONS I sold at $3.00 now selling at $2.60. Bingham Smokers at cost. Send for Free Price List of every thing needed in the apiary. 6tfdb **M. H. HUNT, Bell Branch, Mich.**

FERGUSON'S

LINTLESS COTTON

Madison, Morgan Co., Ga., Sept. 1, 1892.

Ferguson's Lintless Cotton is the grandest discovery of the age. For four years, experiments have been made with this Cotton Seed. It comes true to name every time. It is one of the most abundant bearers ever seen in cotton and will resist a drought ten to fifteen days longer than any other cotton. Stalks bear from forty to eighty seed in each boll. They contain more oil and more plant food than any other cotton seed, and will make, this season, four hundred or five hundred bushels of seed per acre, planted 3x3 feet and cultivated as other cotton. Sowed broadcast as peas for fertilizing purposes up to the 10th of June, will shed on the land from one hundred to two hundred bushels of seed, without any work. The cotton grows tall, putting out from six to eight long running limbs near the bottom of the stalk, They resemble potato vines. Each of these limbs will mature from eight to twenty bolls, besides the short limbs and brace limbs common in other cotton.

For stock it is superior to all others. Chickens, turkeys, and ducks devour the seed when in the roasting-ear state as eagerly as they do corn. Stock of all kinds eat them. No humbug whatever, but the greatest blessing of the age.

This cotton is planted and cultivated as other cotton. In harvesting the burr is pulled and threshed as peas. The threshing and gathering is very rapid work.

I sell seed this season at one dollar per package. Am filling orders every day, and will continue as long as seed lasts. Each package will make enough seed after one planting to plant 10 acres 3x3. Care should be taken to plant these seed where no other cotton previously grew, then you will have no volunteer lint cotton stalks among it.

This seed will not mix with any other seed.

Can refer to the best men in my county.

Please hand circulars to your friends.

All letters of inquiry must enclose stamp for reply.

Seed sent by mail at purchaser's risk.

Yours truly,

R. H. CAMPBELL.

☞In responding to this advertisement mention Gleanings.

A goodly number of first-class pure-bred yellow-to-the-tip queens, this season's rearing, will breed yellow queens, and suitable as the best of breeders, now on hand at $1.50 each. Untested, 75c each. Satisfaction, or money refunded. W. H. Laws,

16-17d Lavaca, Ark.

VANDERVORT
COMB-FOUNDATION MILLS.

Send for samples and reduced price list.

1tfd **JNO. VANDERVORT, Laceyville, Pa.**

☞In responding to this advertisement mention Gleanings.

SECTIONS.

$2.50 to $3.50 per M. Bee-Hives and Fixtures cheap. **NOVELTY CO.,**

6tfdb **Rock Falls, Illinois.**

☞In responding to this advertisement mention Gleanings.

Queens Yellow to the Tip
Mated to Drones Yellow all over.

FROM an entirely different strain is what that QUEEN SPECIALIST

Jas. Wood, North Prescott, Mass.,

Is sending **by Return Mail at 75 cts. each.** Every queen warranted purely mated, and safe arrival guaranteed. I am five miles from any other bees, and none but selected Drones allowed to fly.

Please mention this paper

FOR SALE AT $1600.

My residence at Plattsmouth, Nebraska, consisting of 5 acres of land; 2½ acres in cultivation, balance in natural timber; one good house, 14x18, 1½ stories high, kitchen 10x14; 140 bearing grapevines, 65 apple-trees, all 4 years old; a good well; one tool-house, 10x10. Also 80 colonies of Italian bees, all in movable-comb hives, mostly in 2-story chaff hives of 10 frames, Simplicity size; combs are nice and straight. Bees are in splendid condition. No foul brood ever existed in this locality. Good honey market. No large bee-keepers near. Plenty of white clover abounds, and plenty of apple orchards within 3 miles of apiary. Residence located inside of boundary of a city of 10,000 inhabitants, and 25 miles south of Omaha. Will sell the apiary alone for $500.00, or place separate for $1100.00, or all together for $1600.00, apiary fixtures included. Terms of sale, cash down. Further particulars on application. Please inclose stamp for your reply.

Address ***J. M. YOUNG,***

16-17d ***Plattsmouth, Box 874, Neb.***

☞In responding to this advertisement mention Gleanings.

APIARY AND FARM FOR SALE

Sixty colonies blacks and Italians, mixed; L. frames; Simplicity and Dovetailed hives; with farm of 57 acres, two-thirds bottom flat land, with hills covered with timber; every way you look you can see from 3 to 10 miles; 4 miles from town; any quantity of poplar, basswood, hard and soft maple, sourwood, elm, chestnut, hickory, sumac, goldenrod, etc., within range. What I know about bees: I think 600 stands by the house would not be overstocked; no danger of competition, only 5 or 6 box hives within 3 or 4 miles that I know of. Satisfactory reasons for selling. For any other particulars write, or come and see me. $950.00 is the price. 200 fruit-trees, mostly young, many commencing to bear. Apply to ***J. HAMMOND,***

Buena Vista, Scioto Co., O.

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FOR SALE.—An apiary of 65 colonies of Italian bees in L. and S. hives, cheap, with fixtures and everything needed in an apiary, with honey crop if bought soon. For particulars address

LOUIS WERNER, Edwardsville, Ill.

FALL Eggs and Plants, Fowls, Poultry-books and Papers; finely ill. circular free. Address

GEER BROS., St. Marys, Mo.,

14tfdb Or, H. B. GEER, Nashville, Tenn.

VIOLINS MURRAY & HEISS. CLEVELAND OHIO.

MUSICAL GOODS OF ALL KINDS. **GUITARS** CATALOGUE FREE

MANDOLINS

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Best on Earth.

More than one hundred thousand Bingham & Hetherington Honey-knives and Bee-smokers in daily use. Illustrations sent free.

Bingham & Hetherington,
Abrola, Mich. 71fdb

IF YOU WANT BEES

That will just "roll" in the honey, try **Moore's Strain of Italians**, the result of 13 years' careful breeding. Reduced prices: Warranted queens, 80c each; 3 for $2.00. Tested, $1.00 each; Select tested, $1.50 each. Safe arrival and satisfaction guaranteed. Those who have never dealt with me I refer to A. I. Root, who has purchased of me, during past 12 years, 582 queens. Circulars free.

J. P. MOORE, Morgan, Pendleton, Co., Ky.
13tfdb Money-order office, Falmouth, Ky.

In writing to advertisers please mention this paper.

Bee - Keepers' * Supplies.

We are prepared to furnish bee-keepers with supplies promptly and at lowest rates. Estimates gladly furnished, and correspondence solicited. Our goods are all first-class in quality and workmanship. *Catalogue sent free.* Reference, First National Bank, Sterling, Ill. Address 1-24db

WM. McCUNE & CO.,
Sterling, Illinois.

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75c. Golden Queens by Return Mail. 75c.

My Golden Italians are good workers, and gentle. Queens are carefully bred from best stock. Three queens, $2.00; six for $3.50; dozen, $6.00. Safe arrival and satisfaction guaranteed. Money-order office, Daytona, Fla. **JOHN B. CASE,**
11tfdb **Port Orange, Vol. Co., Fla.**

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BEE-HIVES, SECTIONS, ETC.

We make the best goods and sell them cheap.
Our Sections are far the best on the market.
Our Works turn out the most goods of any factory in the world.
Our goods are known as the best throughout the United States and Europe.
Write for free, illustrated catalogue and price list.

G. B. LEWIS CO., WATERTOWN, WIS.

SECTIONS.

$2.50 to $3.50 per M. Bee-Hives and Fixtures cheap. **NOVELTY CO.,**
6tfdb **Rock Falls, Illinois.**

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VIOLINS MURRAY & HEISS. CLEVELAND · OHIO ·
MUSICAL GOODS OF ALL KINDS. GUITARS CATALOGUE FREE
MANDOLINS

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CAUSE.

80 LBS. PER COLONY

is the record of three of our golden queens, with several others not far behind, while the best record of any other race is 42 lbs. from 3-banded bees.

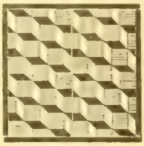
We are making a specialty of these beauties for business, and are so sure that they will please you that we guarantee them to give

ENTIRE SATISFACTION,

or we will return your money. Could you ask more?

The bees from our best queens are not banded, but are all yellow on the first four scales, and the fifth is part yellow, with an occasional bee with a little yellow on the sixth scale. The above honey record is of white clover in 1-lb. sec's, worth $12 in our market today. No drones near us but the yellowest. One warranted queen, $1; 12 for $11.

Reference: A. I. Root.


EFFECT.

S. F. & I. TREGO,
15-18db **Swedona, Ill.**

JENNIE ATCHLEY

Will send you either three or five banded Italian queens in June, July, and August, 75c each; $4.20 for 6, or $8.00 per doz. Safe arrival and satisfaction guaranteed.
1tfdb **Floyd, Hunt Co., Texas.**

Please mention this paper.

Our Golden and Leather Colored Italian Queens.
Bred for Business.

ALWAYS ON TOP

Tested queens, $1.10; untested, 70c; 3 for $2.00. Our stock consists of 300 colonies devoted to bees and queens for the trade. **Orders filled by return mail.** Send for catalog of supplies, etc.

JNO. NEBEL & SON, High Hill, Mo.

Sections at $3 per 1000. These are perfectly smooth, and first-class. Brood foundation 45 cts. per lb. All supplies equally low. Goods shipped direct from New York city. 1-18dt.

I. J. STRINGHAM,
92 Barclay St., N. Y.

Get the Best! Five-banded Golden Italians that will give satisfaction. Queens by return mail, $1 each; 6 for $5; for full particulars send for circular. 13tfdb

CHAS. D. DUVALL, Spencerville, Md.

Muth's
Honey - Extractor.

Square Glass Honey-Jars,
Tin Buckets, Bee-hives.
Honey-Sections, &c., &c.
Perfection Cold-Blast Smokers.

APPLY TO
CHAS. F. MUTH & SON, Cincinnati, O.

Send 10-ct. stamp for "Practical Hints to Bee-keepers."
Please mention this paper.

TAKE NOTICE!

BEFORE placing your orders for SUPPLIES, write for prices on One-Piece Basswood Sections, Bee-Hives, Shipping-Crates, Frames, Foundation, Smokers, etc. PAGE & KEITH,
14tfdb New London, Wis.

Please mention this paper.

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CONVENTION NOTICES.

The Colorado State Bee-keepers' Association will hold its "Honey Day" at Longmont, Sept. 28. H. Knight, Sec.
Littleton, Col.

The Capital Bee-keepers' Association will meet in the Supervisor's Room of the Court-house, Springfield, Ill., Oct. 4th, 1892, at 10 a.m. C. E. Yocum, Sec., Sherman, Ill.

The Southwestern Wisconsin Bee-keepers' Association will hold its next annual meeting in Boscobel, Grant Co., Wis., on the 13th and 14th of January, 1893, commencing at 10 a.m. All members of the association are requested to be present, as the following officers are to be elected: President, vice-president, secretary, assistant secretary, and treasurer. Blank reports will be sent to each member of the association for 1892, with instructions. A cordial invitation is extended to all bee-keepers, and especially to those who would like to join us. Each member will be notified at least one month before said meeting. Benj. E. Rice, Sec.
Boscobel, Wis.

FERGUSON'S

LINTLESS COTTON

Madison, Morgan Co., Ga., Sept. 1, 1892.

Ferguson's Lintless Cotton is the grandest discovery of the age. For four years, experiments have been made with this Cotton Seed. It comes true to name every time. It is one of the most abundant bearers ever seen in cotton and will resist a drought ten to fifteen days longer than any other cotton. Stalks bear from forty to eighty seed in each boll. They contain more oil and more plant food than any other cotton seed, and will make, this season, four hundred or five hundred bushels of seed per acre, planted 3x3 feet and cultivated as other cotton. Sowed broadcast as peas for fertilizing purposes up to the 10th of June, will shed on the land from one hundred to two hundred bushels of seed, without any work. The cotton grows tall, putting out from six to eight long running limbs near the bottom of the stalk. They resemble potato vines Each of these limbs will mature from eight to twenty bolls, besides the short limbs and brace limbs common in other cotton.

For stock it is superior to all others. Chickens, turkeys, and ducks devour the seed when in the roasting-ear state as eagerly as they do corn. Stock of all kinds eat them. No humbug whatever, but the greatest blessing of the age.

This cotton is planted and cultivated as other cotton. In harvesting, the burr is pulled and threshed as peas. The threshing and gathering is very rapid work.

I sell seed this season at one dollar per package. Am filling orders every day, and will continue as long as seed lasts. Each package will make enough seed after one planting to plant 10 acres 3x3. Care should be taken to plant these seed where no other cotton previously grew, then you will have no volunteer lint-cotton stalks among it.

This seed will not mix with any other seed.
Can refer to the best men in my county.
Please hand circulars to your friends.
All letters of inquiry must enclose stamp for reply.
Seed sent by mail at purchaser's risk.
Yours truly,
R. H. CAMPBELL.

☞In responding to this advertisement mention Gleanings.

AUSTRALIA.

Wanted—every bee-keeper in Australia to send for my large illustrated catalogue of bee-keepers' supplies, American queens, etc., etc. Post free.
18-23db **H. L. JONES, Goodna, Queensland.**

For Sale—12 Colonies Black Bees In Simplicity hives, cheap, with fixtures and every thing needed in an apiary, with Barnes saw, bee-veil, and smoker. For particulars address
OSCAR C. ABEL,
18d **Wayville, Saratoga Co., N. Y.**

FALL Eggs and Plants, Fowls, Poultry-books and Papers; finely ill. circular free. Address
GEER BROS., St. Marys, Mo.,
14tfdb Or, H. B. GEER, Nashville, Tenn.

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All advertisements intended for this department must not exceed five lines, and you must say you want your adv't in this department, or we will not be responsible for errors. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements. We can not be responsible for dissatisfaction arising from these "swaps.'

WANTED.—To exchange Scotch Collie pups for any thing useful on farm or in bee-yard.
15tfdb N. A. Knapp, Rochester, Lorain Co., O.

WANTED.—To exchange yellow Italian queens, and strawberry-plants cheap. Bubach, Jessie, Eureka, Haverlands, Warfield, Crescent, Lady Rusk, for poultry, or offers. 15tfdb
Mrs. Oliver Cole, Sherburne, Chen. Co., N. Y.

WANTED.—To exchange one high-grade Safety bicycle; one 49-inch Columbia light roadster bicycle; one Odell typewriter; tested Italian queens, for wax, honey, or offers. J. A. Green,
13tfdb Dayton, Ill.

WANTED.—To exchange 25 new "Hunt" hives (chaff), about one half nailed together, balance in flat; 250 good straight brood or extracting combs, built from full sheets of foundation; 100 Hoffman frames, wired, and a quantity of other frames; also a honey-extractor, used but one season, and in first-class condition; also 10 Langstroth Portico hives, single wall, in good condition, for Safety wheel, or offers. Reasons for selling hives, etc., have sold all my bees. Geo. N. Cornell,
Lock Box 6. Northville, Mich.

WANTED.—To exchange town lots in marvelous Marion, Queen city of the Indiana gas-belt, for honey; also 200 colonies of bees for small properties, building material, live stock, or offers.
17-18d B. T. Baldwin, Marion, Ind.

WANTED.—To exchange a Surprise incubator, 204 egg capacity, used only one year, cost $50.00, for $35.00 worth of good extracted honey. Correspondence solicited.
18d R. R. Cuyler, Alexandria, Va. Box 199.

WANTED.—To exchange Light Brahmas (Felch strain), Silver Dorkings, 1 bull terrier (female), 2 rat and bull terriers, crossed (females), 1 Novice extractor, 1 organini, 100 feet music, 1 plow, 1 double shot-gun, 1 parlor cigar-case, for offers.
18-19d Elias Fox, Hillsboro, Wis.

WANTED.—To exchange a Warwick Perfection Safety bicycle, used but little, and good as new; also a Gunkel E-flat cornet in perfect order, silver and gold plated, in fine case, for wax, honey, or offers. 18-19d C. A. Graves, Shelby, Ohio.

WANTED.—Situation in an apiary, or on farm, apiary preferred, by a young man of steady, temperate habits. For particulars address
O. B. Griffin, 423 Olney St., Providence, R. I.

HONEY COLUMN.

CITY MARKETS.

ALBANY. *Honey.* We have received up to date 100 cases of comb, and 25 half-bbls. of extracted honey. The quality of the comb honey is only fair, and we are selling the clover at 15c, and buckwheat at 12. We think fancy clover would bring 18. Extracted selling freely at 6½@8c, according to quality. *Beeswax*, 26@28. We advise our consignors to ship their honey by freight rather than by express, as it arrives in better condition and costs less.

Sept. 8. **CHAS. MCCULLOCH & CO.,**
393, 395, 397 Broadway, Albany, N. Y.

ALBANY. *Honey.* Comb honey Demand improving at 15@16c for white; mixed, 13@14; dark, 12@13. Think early prices will be best. Receipts light yet. Extracted honey White, 8@8½; mixed, 7@7½; dark, 6@7. *Beeswax*, 26@28, steady.

H. R. WRIGHT,
Sept. 13. Albany, N. Y.

NEW YORK. *Honey.*—Comb honey is now arriving freely. Demand is good, and we quote as follows: Fancy white, 1 lb., 15@17c; 2 lbs., 13@14; fair white, 1 lb., 13@14; 2 lbs., 12c; buckwheat, 1 lb., 11@12; 2 lbs., 10c. Extracted, white clover and basswood, 7½@8; orange bloom, 7½@8; Southern, 65@75 cts. per gallon as to quality. *Beeswax*, 26@27.

Sept. 10. **HILDRETH BROS. & SEGELKEN,**
28 & 30 West Broadway, New York.

NEW YORK.—*Honey.*—The market for comb honey is about opening with some arriving, prospects are good for prices and demands. 1 lb. fancy clover, 16@17; 2 lbs., 15; 1 lb., fair clover, 14@16; 2 lbs., 12@13; 1 lb. buckwheat, 10@11; 2 lbs., 9@10. Extracted, basswood and clover, 8@8½; buckwheat, 6@6½. *Beeswax*, 26@27. **CHAS. ISRAEL & BROS.,**
Sept. 9. 110 Hudson St., New York.

KANSAS CITY.—*Honey.*—There is a good demand for honey, but a very light supply. Price of 1 lb. comb, white, 16c. Extracted, 6@7½. The new crop of honey is arriving, and is very fine. There is no beeswax on the market. **HAMBLIN & BEARSS,**
Sept. 8. 514 Walnut St., Kansas City, Mo.

KANSAS CITY.—*Honey.*—The receipts of both comb and extracted are light; demand good. We quote No. 1 white 1 lb. comb, 15@16; No. 2, 1 lb., 13@14; No. 1 amber, 1 lb., 14@15; No. 2, 1 lb., 10@12. Extracted, white, 7@7½; amber, 5@6. *Beeswax*, 22@25.

Sept. 9. **CLEMONS-MASON COM. CO.,**
Kansas City, Mo.

CHICAGO.—*Honey.*—The demand for comb honey since the weather is cooler, is brisk. We find consignments sell upon arrival at 16c for best grades of white; dark comb, 10@13. Extracted, steady at 6½@7 and 8. *Beeswax*, 23@24. **R. A. BURNETT,**
Sept. 7. 161 So. Water St., Chicago, Ill.

CHICAGO.—*Honey.*—We are now having inquiries for white 1-lb. section comb honey, and quote market 16c on best grade; amber, 14. There is a good demand for extracted, and we can sell all our receipts promptly on arrival at 7@8 *Beeswax*, 26.

Sept. 9. **S. T. FISH & CO.,**
189 South Water St., Chicago.

PHILADELPHIA.—*Honey.*—Just for the moment the supply somewhat exceeds the demand for comb. Demand for extracted, good, with small supply. After Sept. 21 the market will open in earnest. We think prices will be higher than last year. No. 1 fancy white, 17@19c; No. 1 white, 15@16; No. 2 white, 13@14; buckwheat, 10@14. Extracted, 7½@8c. We solicit early shipments. **E. J. WALKER,**
Sept. 9. 31 So. Water St., Philadelphia.

CINCINNATI.—*Honey.*—The demand for extracted is in excess of arrivals, at 5½@8c, with ready sales. There is a good demand for comb honey, and not enough on the market to meet it. It brings 12@16c for best white in the jobbing way. *Beeswax*, demand is good, with good arrivals; it brings 20@25c for good to choice yellow.

CHAS. F. MUTH & SON,
Sept. 8. Cincinnati, O.

BOSTON. *Honey.* New honey is coming in slowly, and Vermont crop is reported short. Best No. 1 white in 1-lb. sections, selling 17@18c. Extracted, 8@9. **BLAKE & RIPLEY,**
Sept. 9. Boston, Mass.

BUFFALO.—*Honey.*—To-day fancy honey is held and sells moderately at about 15@16c in fancy 1 lb. sections; No. 2, about 13@14. Fancy beeswax, about 25@28; seconds, 15@21. The fact that the fruit crop is so short, it is expected that honey will do well.

Sept. 12. **BATTERSON & CO.**, Buffalo, N. Y.

DETROIT.—*Honey.*—Comb honey continues to be scarce and prices remain firm at 14@16c for white; no dark offered. Extracted, 8c. *Beeswax*, 24@25.

Sept. 8. **M. H. HUNT**, Bell Branch, Mich.

MINNEAPOLIS.—*Honey.*—Supply light. Very little call from trade at present. Buying very little. Do not care to pay over 14c. **J. A. SHEA & CO.,**
Sept. 9. Minneapolis, Minn.

ST. LOUIS.—*Honey.*—Demand for extracted continues good, at 5¼@5¾. Demand for comb quiet. We quote 10@16. *Beeswax*, prime, 25.

Sept. 8. **D. G. TUTT GRO. CO.,**
St. Louis, Mo.

WANTED.—50,000 lbs. of choice white comb honey. Address BYRON WALKER,
17tfdb Evart, Mich., or Wyalusing, Wis.

WANTED—5000 lbs. extracted honey, basswood and white clover. Address **E. PETERMAN**, Waldo, Wis.
17-18d

FOR SALE.—Choice white-clover honey, in 60-lb. cans (net), at $5.10 per can; two cans, $10.00.
OLIVER FOSTER, Mt. Vernon, Linn Co., Iowa.

FOR SALE.—Extracted honey. Samples free.
J. B. MURRAY, Ada, Ohio.

FOR SALE.—Three tons of extracted honey, in 60-lb. square cans, 2 cans in a box. Mostly red-clover honey, mixed with alfalfa. Quality No. 1.
AIKIN BROS., Loveland, Colorado.

BUFFALO, N. Y. Unsurpassed Honey Market.
BATTERSON & CO. Responsible, Reliable,
Commission Merchants. 18tfdb **and Prompt.**

ESTABLISHED 1876.

S. T. FISH & CO.,

COMMISSION MERCHANTS.

DRIED FRUIT, HONEY, AND FARM PRODUCE,

189 South Water St., Chicago.

We make a specialty of our Honey Department, and ask for your consignments and correspondence. Reference, any bee-paper. 17-24db

Golden Honey Queens.

Queens in Sept., untested, 65c; half doz., $3.00; tested, $1.00; one year old, 85c; select tested, $2.00; extra select, $4.00; the very best, $7.00; imported, $4.00.

LEININGER BROS., Ft. Jennings, Ohio.

BEES FOR BUSINESS.

Warranted queens from my choice strain of yellow hustlers, bred for working qualities and gentleness as well as beauty, 75 cts. each by return mail. Tested, $1.25. A few mismated queens, 25 cts. each.
18tfdb **J. A. GREEN, Dayton, Illinois.**

WANTED.—Reliable parties to distribute and collect for

LADIES' TOILET - CASES.

Well worth $1.00 in any family. Will send sample and full instructions by mail for 35 cts. in stamps, returnable if not satisfactory. Address J. C. FRISBEE, Gen'l Agt., 172 Maple St., Denver, Col.
Reference, A. I. Root, Medina, Ohio. 8-24db

TO RAISE A GOOD CROP

of honey is one thing; to sell it at a good price is another. To bend every energy to the accomplishment of the former, and then neglect the latter is a mistake. Whether it is advisable to develop the home market, and, if so, how it shall be done; whether the honey shall be sent to a distant market, and, if so, when and which one; whether it shall be sold outright or on commission, and why; or whether it shall be peddled, and how—these and several other points are discussed in one of the chapters of **"Advanced Bee Culture."** Price of the book, 50 cts. The REVIEW one year and the book for $1.25. For $1.75, the book, the REVIEW, and a fine, young, laying Italian queen. Queen alone, 75 cts. *W. Z. HUTCHINSON, Flint, Mich.*

PRICE $2.

(POSTPAID).

Ladies' Fine Shoes, Genuine Kid, Soft Soles; Style, Fit, and Wear Equal to $3 Shoes. High or Low Heel; Broad or Narrow Toe; Sizes 1 to 7. C D E or E E Widths. Send your size. Sure Fit. Patent tips, same price.

C. L. Griesinger
Medina, O.

Send P. O. order, Registered Letter, or Postal Note.

Was very much pleased with the shoes.
Ocean Springs, Miss. Mrs. Seymore.

Please mention this paper.

CALIFORNIA APIARY FOR SALE.

135 **SWARMS,** prime condition, plenty of honey, 5 acres, house, barn, 1½ miles from the charming village of Nordhoff, Ventura Co. Thickly settled, Christian neighborhood, churches, schools. This is not an isolated bee ranch, away from civilization, but is in the most *beautiful* valley in the State. Climate unsurpassed for weak lungs. Bountiful honey pasturage. Plenty of shade trees. Whoever offers *$1000* first, gets the *deed.*

C. A. SAYRE,
1014 NOE ST., SAN FRANCISCO, CAL.

In writing to advertisers please mention this paper. 4tfdb

BEE SUPPLIES RETAIL —AND— WHOLESALE.

Everything used in the **Apiary.** Greatest variety and **largest** stock in the West. New catalog, **54** illustrated pages, free to bee-keepers. **E. KRETCHMER, RED OAK, IOWA.**

Please mention this paper. 2tfdb

FIVE-BANDED GOLDEN ITALIANS.

100 queens now ready at 75c each; 6 for $4.25; 3-banded, each, 60c; 6 for $3.00. Breeders on application. **CHAS. H. THIES, Steeleville, Ill.**

DR. J. W. CRENSHAW,
Versailles, - Kentucky,

Offers for Sale

Untested Italian Queens at $1.00 each through May and June; after, 75c each. Safe arrival guaranteed. Queens raised only from Imported mother. Drones only from selected and tested mothers.

Also CELERY PLANTS from July to September, at $2.00 per M. 7-18db

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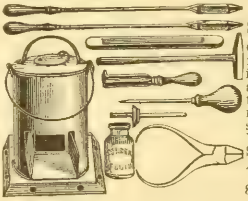


OATMAN'S
SOLDERING AND REPAIR KIT

Consists of fire-pot, soldering-irons, solder, and soldering-fluid, with tools compl'te as shown in cut, with directions for soldering different metals, and how to keep your soldering-irons in shape. Whole kit, boxed, 12 lbs. Shipped on receipt of $2.00. Agents wanted.

O. & L. OATMAN,
8-7db **Medina, Ohio.**

WESTERN BEE-KEEPERS' SUPPLY HOUSE.

ROOT'S GOODS can be had at Des Moines, Iowa, at ROOT'S PRICES. The largest supply business in the West. Established 1885. Dovetailed Hives, Sections, Foundation, Extractors, Smokers, Veils, Crates, Feeders, Clover Seeds, etc. Imported Italian Queens. Queens and Bees. Sample copy of our Bee Journal, "THE WESTERN BEE-KEEPER," and LATEST CATALOGUE mailed FREE to Bee-keepers.

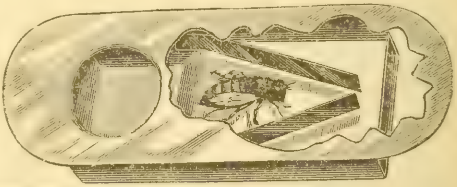
JOSEPH NYSEWANDER,
Des Moines, Iowa.

Porter's Spring Bee-Escape.

We guarantee it to be the best escape known, and far superior to all others. If, on trial of from one to a dozen, you do not find them so, or if they do not prove satisfactory in every way, return them by mail within 90 days after receipt, and we will refund your money.

PRICES:—Each, by mail, postpaid, with full directions, 20c; per dozen, $2.25. Send for circular and testimonials. Supply dealers, send for wholesale prices.

10tfdb **R. & E. C. PORTER, LEWISTOWN, ILL.**



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The Oldest, Largest, Best and Only Weekly Bee-Paper in America. Sample Copy Free.

—: 32 pages—$1.00 a Year :—

The American Bee Journal.

Address **GEORGE W. YORK & CO.,**
199 Randolph St., - CHICAGO, ILLS

From September 1st, 1892, to January 1st, 1893—4 months—only 25c.
From September 1st, 1892, to January 1st, 1894—16 months — $1.15.
To New Subscribers.

GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS.

ILLUSTRATED SEMI-MONTHLY

PUBLISHED BY A. I. ROOT.

$1.00 PER YEAR. MEDINA OHIO

Vol. XX. SEPT. 15, 1892. No. 18.

STRAY STRAWS

FROM DR. C. C. MILLER.

WHAT A NICE world this is!

"THE OWNER of the robbed colony is always the guilty party."—*Straub*.

BUCKWHEAT HONEY is coming into my hives for the first time in eleven years.

LAST YEAR clover yielded, cucumbers didn't; this year clover failed, cucumbers yield.

PELHAM FOUNDATION-MACHINES seem to have more mention in Germany than in this country.

"HOPE SPRINGS eternal in the" bee-keeper's breast. I'm getting my bees in good shape for the flood of honey next year.

WHAT IS TRAVEL-STAIN? If it's dirt from the feet of the bees, how do they get their feet so dirty when working on clean white flowers?

YOUNG QUEENS wrong end foremost in queen-cells have been unusually plentiful this season. Last week we found three of them on one comb.

THE NEXT YOU HEAR of A. I. Root he'll be spinning along through a plowed field at a 2:40 gait, with a bicycle attachment for sowing onion seed.

IT IS CONVENIENT to have one hive stand so near another that it can be used for a seat; but when three or four supers are piled up on it, how then?

CAN'T SOME ONE tell us for a certainty whether a queen can pass through a smaller perforation while a virgin than she can after she commences to lay?

THE BEE-KEEPER is one of the happiest of mortals. His chief delight is in the great things he's *going* to do; and what a lot he has to enjoy "along that line," as Doolittle says!

INVENTIONS AND DISCOVERIES in bee-keeping are plentiful nowadays, but no one invents a way to have good crops. Whenever such a thing is invented and patented I'm ready to buy the patent quick!

DOUBLE-TIER shipping-cases are used by Frank Rauchfuss, a piece of corrugated pasteboard being placed in the bottom of the case, one between first and second tier and one over second tier. Good idea.

HONEY CONSUMED by a colony wintered outdoors, says the *Imker*, averages for October 2 lbs.; Nov., 1 lb.; Dec., 1 lb.; Jan., 2 lbs.; Feb. 3 lbs.; March, 4 lbs.; April, 6 lbs.; total, 19 lbs. But you can't tell which colonies will go below or above the average, so the safe way is to allow 50 per cent more.

MRS. ATCHLEY says, in *Progressive*, that she can mate queens to the drones she wishes by confining them in nuclei which are fed every night, and releasing the queens about the fifth day where drones are flying in great numbers.

SALT CODFISH ought to have a law to protect it from the cruelty of cooks. It's barbarous to boil it—makes it hard and tough. Soak till fresh and thoroughly softened, then merely *warm* it; pour off the water and dress with butter.

FOUNDATION is not safe, left in a hive where the bees are not making use of it. If very thin they are likely to tear it down or tear holes in it. If thick they may paint it all over with propolis. This is true at least toward the latter part of the season.

SHAVING-SOAP is not a necessity, even for those who shave. I've used none for some time. Give the beard a good rubbing with the end of a towel dipped in hot water; strap your razor, then rub the beard again, and see if it doesn't go just as well without the soap.

TREATMENT OF SWARMS. N. P. Aspinwall, in *A. B. J.*, reports that he put newly hived swarms in a dark cool cellar, left them 36 to 48 hours, then shook them down in front of the parent colonies, and four colonies so treated remained without swarming again.

R. F. HOLTERMANN thinks one of my stray straws has gone *astray* in saying that the opposition to wired frames was weakening in Canada. Which way did it stray, friend H.? Was there never any opposition? or have none of the opposers changed in favor of wiring?

A WRITER in *Deutsche Imker* says he made continual use of honey for catarrh, only to find the difficulty aggravated. He then tried it reduced with milk or lukewarm water, and was astonished at the beneficial results. Two tablespoonfuls of honey in half a pint of water at bedtime.

MY BEES are getting lazy. Latterly, when I give them empty combs with dry pollen they just leave the pollen and paint it over with bee-glue, and make no use of that part of the comb. Earlier in the season they gnawed it out, often taking the septum with it. Perhaps it would pay to soak out the pollen for them always.

DO YOU REMEMBER that picture of W. L. Coggshall looking like a chimneysweep with that big broom hanging by his side? I said, "What a looking thing for a bee-brush!" But I've been using one of those same things this summer, and it's far and away ahead of all other bee-brushes I ever tried. You'll say so too, if you try one.

THIS SEASON is unusual at both ends. Clover unusually abundant in bloom, but a failure as a honey-yielder, preceded by the most wretched spring I ever knew, made the first end of the season one long to be remembered; while at present and for some time preceding this 5th of September the bees are just rolling in the honey from buckwheat and cucumbers, and crowding the queens.

EXCLUDER ZINC is reported by some as failing every now and then. I wish we could be told just what kind, for there are different-sized perforations in use. I got two different times from Medina, and both kinds let about one queen in six pass through the perforations. Then I got another kind from there a year or so ago, and I have never known it to pass a laying or a virgin queen. Can the editor tell us what kind I have, and whether it is the same as others fail with?

HONEY ANALYSES AND ADULTERATION.

THOSE 50 SAMPLES SUBMITTED BY PROF. A. J. COOK ANALYZED BY LEADING CHEMISTS; GLUCOSE EASILY DETECTED; SUGAR-SYRUP MIXTURES NOT SO EASILY RECOGNIZED.

I have preliminary reports from each of the three able chemists who have kindly consented to aid us in the important work of detecting adulteration, and arriving at some standard which shall enable us to determine when honey is pure. I can as yet give only a preliminary report; but I can give enough to show that the work is important; and as I am being pressed for a report I send the following:

I sent over 50 samples to be analyzed. I sent samples of honey from various sources, some gathered very rapidly, some slowly, some gathered from honey-dew, some made by mixing honey with one-third or one-fourth glucose; some which the bees stored from pure cane syrup very rapidly—23 lbs. in one night—and extracted the next morning, and the same extracted after it was capped over. These were all sent by number, so that I alone knew just the source of each.

Each chemist detected the honey that was adulterated with glucose, and placed with this a sample of plant-louse honey. Thus, as glucose will be the common adulterant we may feel that this is practically satisfactory. If from 50 samples taken from very varied sources, only one (and that honey-dewy, that never could be sold as honey) was found which could not be distinguished from glucose, we see the chemists can detect this most common adulterant, and enable us to prevent the worst form of adulteration. It is interesting to note that Prof. Wiley—See Bulletin No. 13. p. 798—speaks of pine-tree honey (this is undoubtedly honey-dew) which was like honey adulterated with glucose. The honey-dew which I sent was not from pine-tree aphis, however. I also sent two other samples of honey-dew—one from oak-galls, and the other from larch aphis, which were pleasant to the taste, and pronounced by the chemists as genuine honey.

The honey which was simply cane sugar rapidly stored—and, of course, as we know partially digested by the bees—was pronounced adulterated with cane sugar. But with these were included samples of the finest honey I ever saw—one from basswood, one from white clover, very fine, and one from horsemint, all of which I secured because they were gathered very rapidly. Thus we see the chemists can not surely detect adulteration with cane sugar, if the bees are required to digest or invert the sucrose. If the chemist puts the best quality of white clover and linden honey with honey stored from pure cane syrup, it stands to reason that we could feed our bees a syrup made of, say, one-third honey and two-thirds cane syrup, and the chemists could not detect it; nor could the consumer. I had each member of my class of 40 in entomology taste of the honey from the cane syrup. All pronounced it fine, and not one suspected, even when asked, that it was any thing but genuine honey procured from the ordinary source, and normal in every way.

Thus we have proof of what I have long believed, that our best honey, if gathered rapidly, can not be told from honey stored from pure cane-sugar syrup.

Three samples, one white clover, one goldenrod, and one white sage, all fine and rapidly stored, are regarded as suspicious, as they deport themselves as do honeys with an abnormal amount of invert sugar. Three other samples, one smartweed, one black mangrove, and one horsemint, all peculiar in that they were very rapidly gathered, act as pure invert sugar—that secured by artificially reducing cane sugar. Thus six samples, all certainly genuine, and very excellent, would be pronounced as suspicious, though possibly not condemned as impure.

CONCLUSIONS.

1. We see, then, that the chemist can detect honey adulterated with commercial glucose from all genuine honey, except some from honey-dew, which is so rank that it would never go on to the market.

2. The chemist can not tell honey—even the very best—from that secured by feeding a syrup made of pure cane sugar.

3. Honey that is very rapidly gathered deports itself just as does that secured by feeding pure cane syrup; and so, if it be desirable to detect such adulteration, the chemist must revise his methods, as he is not as yet able to do so.

4. Cane-sugar syrup fed to bees is inverted, and, when stored, is so like our best honey that chemical methods can not detect it.

5. Cane-sugar syrup, unless fed to bees, could be easily told. The bees, by digesting the syrup, change it as they do the nectar which they gather from flowers, which is also cane sugar.

6. We know that honey is largely adulterated; but almost always, if not always, by feeding glucose. This can be detected. Thus we can successfully fight this evil. Prof. Wiley will help us. Let us declare the battle on.

7. I urged at the Detroit convention, in 1890, that the Bee-keepers' Union wage this warfare. It has done grand service. It can do this work. As a member and officer, I vote that it assume this added responsibility, and win yet grander laurels. Why not? It can crush the evil.

8. Bee-keepers do not adulterate. Dealers—wholesale dealers—do this. If bee-keeping dealers have done it, they, with all of their kin, should be exposed and punished. If we will, we can down the enemy. *I vote aye.*

Ag'l College, Mich., Sept. 3. A. J. COOK.

[The results of the above analyses are indeed most valuable. If it is indeed true, that glucose adulteration can be readily detected, it is a grim fact that will make evil-doers tremble; for the courts of the various States will accept the evidences of competent chemists in regard to adulterations, we believe; and all any one has to do is to have certain samples of doubtful honeys analyzed by proper chemists, and submit the results to the Bee-keepers' Union, or such a union as will take cognizance of such cases. Glucose of the best quality can be bought in carload lots for about 2 cts. per lb.; granulated sugar, for not less than 5 cts. Practically, then, glucose is the only article that can be used as an adulterant, *at a profit*. Sugar may possibly be used, but we doubt it.

Samples Nos. 104, 110, 126, 127, 149 (see Bulletin No. 13 of the Department of Agriculture), bearing the label of Chas. F. Muth & Son, were pronounced adulterated with glucose. We knew that the Muths would not adulterate. One of three things *must be* true; viz. (1): They have unwittingly bought honey from parties who adulterated; (2) Their labels have been counterfeited; (3) or the chemists may not always be able to detect glucose adulterations. We incline toward the probability of (1) and (2), that Muth & Son have, as innocent parties, been imposed upon. In view of the possibility of (3) being true, we should like to see the experiment of Prof. Cook's tried once more by three other chemists, and the results compared again. If necessary we will foot the bill, providing State or national funds can not be secured for the purpose.—After writing the above we read the proof of the following, which is to the point:]

PURE HONEY.

SOME BROTHERLY WORDS FOR C. F. MUTH & SON, BY FATHER LANGSTROTH.

Friend Root:—Allow me to give my reasons for believing that pure honey and C. F. Muth & Son have such a natural affinity for each other that they will never be found warring against each other.

When my patent on movable frames was extended, in 1866, I endeavored to sell brass trade-marks, each having its own number, for 25 cents apiece — one to be put on every new hive made under the extended patent. Mr. Muth, who was then just beginning his apiarian career, purchased trade-marks for all the hives he made for his own use or for sale, until my patent expired. He had no personal acquaintance with me; but he believed that I had rights, and was determined to respect them. If the great mass of bee-keepers who were benefited by my hive had done the same thing I should have been well rewarded for my invention. I had, therefore, ample proof, more than twenty-five years ago, from Mr. Muth's dealings with me when I was too poor to defend my legal rights, that he was an honest man; and his whole course as one of the largest (if not the largest) dealers in the United States in pure honeys has established for him a reputation for fair dealing of which any business man might justly feel an honorable pride. For the twenty-five years I have known Mr. Muth I have been a frequent visitor at his house, often spending days with him, and have been familiar with all his methods of putting up his honey, which, indeed, have always been open to the honey-world, as his place of business has been a great rendezvous where all bee-keepers might be sure of a hospitable reception. Now, if there had been any attempt to adulterate the goods in which he dealt, how could it possibly have escaped the notice of the hosts of bee-keepers who were welcome at all times to inspect all his processes? or how could it have failed, sooner or later, to have been exposed by some of his many employes?

The only adulterants of honey which could ever be profitably used are sugar and glucose; and as Mr. Muth deals in honey by the hundreds of thousands of pounds, he could not possibly adulterate his honeys with either on so large a scale as to make it profitable, without the kind of business he was carrying on betraying itself by the sugar and glucose barrels which he would have been obliged to handle. The idea that Mr. Muth could adulterate, and yet escape detection, is too preposterous to be entitled to the notice I have already given it.

It is true, Mr. Muth deals largely in all kinds of pure honey — good, bad, and indifferent; for there is a large demand for all these kinds, even for the darkest and poorest, which is used in the manufacture of printers' rollers—nothing else being able to compete with it for such a purpose. Tobacconists and brewers are also large consumers of pure dark honeys, while the choicest qualities are purchased for making the famous honey-cakes which keep fresh for nearly six months. A single maker of these cakes buys of the Muths a carload of choice honey—some 20,000 to 24,000 pounds — every five or six weeks!

Enough has been said to show, not only that Mr. Muth is not the style of man out of which adulterators are made, but, apart from all motives of honor and honesty, he is a man of too much good business sense to engage in falsifications which, sooner or later, would surely be detected, and would end in the ruin of his extensive business.

But may not Mr. Muth be imposed upon by those who have adulterated honeys for sale, and thus become an innocent agent for imposing their goods upon the public? Now, as the only way in which honey can be profitably adulterated is by using sugar or glucose, such fraudulent mixtures can never be imposed upon such experts as Charles F. Muth & Son. Before I lost my exquisite sense of taste and smell I could always recognize any honey with which I had once become acquainted.

For the last four years Mr. Muth has associated with himself in business his son, Augustus G., who has been with him as an assistant ever since he has dealt in honey, and who shares the same honorable instincts with his father.

Those who are personally acquainted with C. F. Muth need no indorsement of his honesty by me or any one else; but as his good name has been called in question by those who do not know him, I have felt that it was a duty which I owed to my tried friend of so many years, and to the bee-keeping public, to speak as I have.

If any honey bearing the label of C. F. Muth & Son has been found to be adulterated, I believe that either some mistake has been made in the analysis or else it has been tampered with by dishonest parties. Dr. C. C. Miller is confident that Muth's labels have been counterfeited by dealers who wished to dispose of their bogus honey on the strength of his good name.

I close as I began—pure honey and Charles F. Muth & Son are words and things which have always gone together, and which I hope will very soon, with some suitable device which can not be easily counterfeited, become the legal trade-mark of a firm which has done so much for the bee-keepers of this country by affording a cash market for their products, and by setting their faces as a flint against all adulterators and adulterations. L. L. LANGSTROTH.

Dayton, O., Aug. 25.

SELLING HONEY.

SOME OF THE DIFFICULTIES ENCOUNTERED.

It has been said, that "selling honey is a science;" and, after doing a little in that line every year for about ten years, I am ready to admit the truthfulness of the saying, and must also admit that I have not as yet quite mastered the "science." In selling honey, new obstacles confront one's path continually; new charges are constantly being made which must be refuted, and, in order to do so intelligently, it is necessary not only to know the constituents of honey, its medicinal and food value, but I believe you should know, or at least have a pretty good idea of, how honey acts when mixed with the different compounds said to be used for the purpose of adulteration. To illustrate, I will recite a few of the charges that have been made in my own case, notwithstanding I never adulterated a pound of honey in my life, and can make affidavit to that effect.

When at Mt. Sterling, Ill., some seven years ago I extracted some white-clover honey which had previously been all sealed, was thoroughly ripe, and of fine quality. I put a quantity of it in one-pound Muth jars, labeled it "Pure honey," with my name and address, and placed it in several of the grocery stores to be sold on commission. It went all right until cool weather, when it granulated almost solid, and was as white as any sugar. Then it stopped selling, and the grocers told me that their customers said it was "mostly white sugar;" that I "put too much sugar in my honey," etc., and, notwithstanding I had taken the precaution to put a notice on each jar, stating that "all pure honey would granulate," how to liquefy, etc., it would not sell. I then took it home and liquefied it, when it sold again. After selling out I purchased three barrels from neighboring bee-keepers. One was pure Spanish needle, and went off with but little complaint; one was white clover, and, being candied, I had some such complaint as on the former lot; but still I sold considerable of it granulated. The other barrel was from goldenrod; and, although very fine honey, it was new to many of my customers, myself as well, and we were all at a loss to account for its peculiar flavor. I heard that one gentleman said there was lard mixed with it.

Well, last year we got a dose of the famous honey-dew, so copious and widespread as to be unparalleled in apicultural history in this country. Of course, nearly every one not acquainted with honey-dew thought it was adulterated with sorghum, glucose, etc. I sold over 3000 lbs. in Q——, most of it direct to consumers; and while most of those to whom I sold accepted my explanation, there were some who doubted it. One lady, to whom I sold about 75 lbs., told a neighbor that the last lot I brought her was half sorghum; that it was honey *on top* and sorghum *in the bottom*. See how she gave herself away! Had I mixed sorghum with it, the same being lighter than honey it would have been found on top and the honey in the bottom. To sum up, the white-clover honey, if mixed with sugar (syrup) as alleged, would not have granulated solid as it did; while the goldenrod honey, if mixed with lard, would have made a vile mess of which the gentleman who made the accusation would not have taken the second taste. But on account of this undying suspicion, which is continually bobbing up, and, like Banquo's ghost, will not down, I must own I am becoming disgusted with the extracted-honey trade.

The only remedy I can see for the difficulties which now beset its path is for the government to offer a bounty, if only one cent a pound, on the amount produced each year, putting its stamp on each producer's output, and punishing with heavy fines all persons or firms having adulterated honey in their possession. This would prove the death of that hydra-headed monster, *Adulteration*. W. J. Cullinan.

Quincy, Ill.

ADULTERATING HONEY, AND THE EXTENT THAT IT IS PRACTICED.

On page 610 of Gleanings we read the letter from Mr. J. F. McIntyre, and also your notations. Responding thereto we repeat former assertions, that it is outrageous, the quantity of adulterated honey on the market. We are confident there is a way in which laws can be framed to prevent it, and we are ready to assist in the movement. We have written letters heretofore on this topic, and we must rely on the bee-papers for support and encouragement of the movement. *We* will sell pure honey only; but we know of commission firms who are placing quotations in bee-papers, and who not only sell adulterated honey, but who practice glucosing themselves. This is certainly an outrage. Start the ball a rolling, and we will help kick it along. S. T. Fish & Co.

Chicago, Ill., Aug. 20.

THAT NEW BEE-KEEPERS' UNION.

GENERAL MANAGER NEWMAN DISCUSSES THE ISSUE.

To members of the Bee-keepers' Union:

In Gleanings in Bee Culture for August 15th, Mr. J. F. McIntyre suggests a matter of considerable importance for consideration at the coming meeting of the North American Bee-keepers' Association at Washington. He says:

> I would urge all honest bee-keepers who meet in Washington next fall, to organize another bee-keepers' union for the express purpose of fighting the adulteration of honey. I believe such a union would soon have ten times the strength of our present one, because we are all interested in this matter, except a few dishonest ones, and we will soon make it interesting for them. I have known for several years that a large proportion of the extracted honey sold in eastern cities was adulterated. This is why our dark honey sells for nearly as much as white—it will stand more glucose; and this is why the price does not go up in a poor year.

Personally, the manager of the National Bee-keepers' Union has waged war upon adulterators for many years, as is well known to readers of bee-literature generally; but the Union was formed for quite another purpose—that of defending the rights of bee-keepers when assailed by jealous or vindictive neighbors.

During the eight years of its existence the Union has gained victories to be proud of. It has compelled both judges and juries to render just and fair decisions in cases where bee-keeping was involved, and has won, from the highest courts of the country, decisions of law which will be pointed to as precedents as long as law and order shall endure.

Its history and achievements are too glorious to be ignored, even if a score of similar institutions are projected. It is also true, that all bee-keepers are not alike personally interested in its objects, as Mr. McIntyre asserts, and therefore its membership is very limited. Mr. Root makes these editorial comments upon the suggestion of Mr. McIntyre:

> Whether it would be best to organize a new union having new functions we can not say. It occurs to us that it *might* be more feasible to modify the constitution of the existing Bee-keepers' Union so as to cover the objects above set forth. We have no doubt that every member of that organization would vote to have this change made, providing that General Manager Newman should sanction it. It may not be best, however, to interfere with or enlarge the scope of an organization that has already done great good by the precedents in law which it has established in the interest of the bee-keeper.

Bro. Root is evidently mistaken about every member's vote depending upon my "sanction" of the scheme. It is true, that my election, year after year, to the very important position of General Manager, in such a unanimous fashion, shows that I have the confidence of the members of the Union, and they have in this manner stamped with their approval the work I have done for the Union; but when it comes to the consideration of a new policy for the future, the members of the Union are fully competent to determine for themselves as to the expediency thereof, and I am fully persuaded that they will act for the permanent prosperity of the organization, without deference to my personal views or desires. I would thank Bro. Root for the compliment intended, and shall treat it as such.

In order to add this new feature to the National Bee-keepers' Union, the Constitution must be amended; and, perhaps, the best way will be to have 10 members sign a request and send it to me, to have the proposed amendments submitted to vote. Then let the matter be fully discussed in all the bee-periodicals, so that the members may vote understandingly, after mature deliberation.

If it is voted to add the new feature, then the Washington convention can formulate plans to make an aggressive war upon adulteration and adulterators.

The greatest difficulty to be encountered will be the diversity in the laws of the several States. A national law should be enacted by Congress against adulteration, applicable alike to every State and Territory. Then something may be accomplished; but until then, I fear much of the labor will be in vain.

Another trouble is, that the honey from different localities varies so much in consequence of the diverse soils and atmospheric conditions. On that account, even the analysis of honey by chemists of national reputation is totally unreliable.

Another thing must be provided for. The new departure would require so much time and energy of the General Manager that a salary should be attached to the office. I have done the best I could for the love of the pursuit alone; but it is hardly probable that my successor would accept the office on that condition, with that additional feature attached, to prosecute all honey-adulterators.

Such a union will require a young, energetic, and persistent man, and he should be a good lawyer. None of "these essential qualities" will be found in the present General Manager, and therefore a new man will have to be elected to that important position.

Fraternally yours, THOMAS G. NEWMAN.
Chicago, Ills., Aug. 29.

—*American Bee Journal.*

WINTERING.

WHEN AND HOW TO PREPARE FOR IT.

A correspondent writes, asking when it is best to prepare his bees for winter, and wants to know if it will not be better to wait till it comes cold weather, so that all brood is out of the hives, and then feed and fix them up so that they can carry the feed right into the center of the cluster. As I have many questions similar to the above I thought I could serve the readers of GLEANINGS no better at this time than to talk to them a little just now along the line of getting ready for winter. To the above question I would say, Don't, on any account, wait till cold weather comes before fixing the bees for winter; for if you do, winter will be almost sure to come and find your bees not ready for it. Years ago I used to think that the month of November would do well enough to fix the bees in; and when November came, something would occur so that I would think that waiting a few more days would do no harm, and so I kept putting it off and putting it off till I was caught by freezing cold weather; and, if I remember rightly, there can be found in the back numbers of GLEANINGS an article on how bees of certain colonies had their stores equalized in cold weather, when the mercury was near zero, and that article was signed by G. M. Doolittle.

Well, the next spring found a fellow of about my size looking similar to that fellow of the Blasted Hopes department, as given in the A B C, with a neighbor telling him that the month of September was the proper time to fix the bees for winter. After profiting by this advice for years with the best of success, I am sure that the neighbor was right, and more especially so where the bees have not stores enough to carry them through to the next honey harvest. If there is one item above another having great importance in the wintering problem, it is the getting of the winter stores near and around the cluster of bees in time for them to settle down into that quiescent state so conducive to good wintering, prior to the middle of October, in this locality. To arrange these stores and properly seal them requires warm weather; hence all will see the fallacy of putting off caring for them till cold weather arrives, as is suggested by our friend above. To be sure that all have the desired amount of stores, there is only one *certain* way to do, and that is, to open the hives and take out each frame and weigh it, after having shaken the bees off it. Next weigh a frame of empty comb, or several of them, so as to know the average weight, which, when deducted from the weight of those in the hive, will give the weight of honey, note being made in all cases of the amount of pollen said combs may contain, their age, etc., and all allowance being made accordingly. Not long ago I saw it advised to put into an empty hive the number of combs used, and weigh the hive so arranged, when the hives in the apiary were to be weighed, the amount of the other deducted; and, if there was 20 lbs. left above this deduction there would would be sufficient stores in that hive for wintering on the summer stand; and if 15 lbs., sufficient for cellar wintering. I call any such mode of procedure a slipshod way, and one which tends toward making wintering a failure. Hives subject to the weather weigh more than dry hives, liable to be taken from the shop, do; colonies of bees differ very much as to size and weight; old combs weigh double that of new ones; combs from a colony which was some time queenless during clover bloom will often contain one-half the amount allowed for cellar wintering, of pollen; hence these and other factors make that mode of procedure little better than guesswork. Again, the amount named is too little by far, were this all available stores. If, after going over a hive and weighing each comb as I have given above, I find that there is 25 lbs. of actual stores, I call that hive or colony all right for winter. If less, it must be fed the deficiency; if more, it can spare some to help another colony which is short. In this way the whole apiary should be gone over, equalizing and feeding, if it is required, till all have the requisite 25 lbs.

But I hear some one say, "This is a fearful job to shake the bees off from every comb and weigh it. Well, so it would be if done with each colony; yet I think it would pay in the long run, even then; but you will have to do this with only one or two till you get the right conception of just how much honey there is in each frame, by simply looking at it, when you can count off the number of pounds almost to a certainty, and do it as rapidly as you can handle the frames. However, you will have to weigh a few if you have never practiced this plan, to give you the necessary training required, after which you can count off combs of honey so as rarely to vary a pound; and when the apiary is thus gone over there is a certainty about it which always gives success, besides which we can say *we know* in this matter, which is very consoling, to say the least.

But some one asks for my formula for winter feed, as there are not stores enough for wintering in the whole yard after equalizing. I have given this fomula several times; but as I have had several calls for it during the past ten days I will give it again. In a vessel of sufficient size, pour in 15 lbs. of water. Bring to a boil, and stir in 30 lbs. of granulated sugar. Bring to a boil again, set from the fire, and stir in 5 lbs. of extracted honey. When cool enough it is ready for feeding, and gives about 50 lbs. of feed which is equal if not superior to the best of honey. Lately I saw the amount of honey given as 10 lbs.; but after experimenting in the matter very carefully I am sure 5 lbs. is as good as more; and where honey is scarce this is quite an item.

Another says, "Is not tartaric acid or vinegar as good for keeping the syrup from crystallizing as is the honey?" No. There is nothing I have ever tried which will equal honey; and I would have the honey, even if I had to send a distance for it, and pay a high price for it at that. One says, "I am afraid of getting foul brood with the honey." There need be no fears on this score, for, were you to be unfortunate enough to get foul-brood honey it could not possibly carry the disease to your bees if they secured none of it in any other way than in the feed; for the boiling syrup would scald the honey so as to kill all germs of foul brood, if the feed is made as I have given.

While I regret to know that it is so, it would seem that many localities will require that bees be fed, according to the numbers so reporting who write me; and I have written this article so it would be in time for all such, and will only add that, in this locality, we have plenty of stores for winter. G. M. Doolittle.

Borodino, N. Y., Sept. 2.

LAYING WORKERS.

HOW TO DETECT THEM.

Generally I can readily detect the presence of laying workers; but sometimes I have seen cases where I could go no further than to say, "I *suspect* there are laying workers in that hive." They are often called *fertile* workers; but isn't *laying* the better word in every way?

The instruction in the A B C is good as far as it goes. "If you do not find any queen, and see eggs scattered around promiscuously, some in drone and some in worker cells, some attached to the side of the cell, instead of the center of the bottom, where the queen lays them, several in one cell and none in the next, you may be pretty sure you have a fertile worker." Yes, if all these conditions are present you may feel pretty sure; but you may have the most of them without a laying worker, and you may have a laying worker with very few of the prescribed symptoms.

"If you do not find any queen" doesn't count for a great deal, for sometimes you can not find a queen, although a good laying one is in the hive.

I have seen "eggs scattered around promiscuously," at least somewhat promiscuously, "some in drone and some in worker cells," laid by a good queen. And I have seen eggs "attached to the side of the cell" by a good queen. I had a fine imported queen one year that took it into her head to stick every egg on the side of the cell some distance from the bottom; and after a time she gave up her foolishness and laid her eggs properly.

On the other hand, I have had cases of laying workers without having the eggs laid promiscuously, or on the sides of the cells. The eggs were attached to the bottom of the cells, just as a queen would place them, and there was no skipping of cells, every cell in a given space containing an egg, and only one egg.

But if the next-mentioned condition should be found, "several in one cell and none in the next," I think I should feel more than *pretty* sure of the presence of laying workers. A queen may lay more than one egg in a cell, but I think it is only when she is crowded for room; that is, room covered properly by bees, and in that case you will never find empty cells beside the ones containing a plurality of eggs—at least, I do not remember ever to have seen such a case.

As a general rule, if laying workers are present you may find sure proof of their presence in the condition mentioned—several eggs in one cell and none in others; and I may add, that the drone-cells will be the ones that have the most eggs. Indeed, if I should at any time find a single drone-cell with more than one egg in it I should feel pretty sure of a laying worker. Now, I shouldn't like to be very positive about it; but I *think* that, in every case where you find this irregular and multiple laying, you can get the same laying workers to do straight regular work that can not be detected from that of a laying queen. Just take away all drone comb, and leave them nothing but worker.

It seems as if a laying worker found it more comfortable to lay in a large cell. So you will find drone-cells first used, then used over again, and afterward worker-cells. I do not remember ever to have seen two eggs laid by a queen in a drone-cell, and I do not remember to have seen two eggs laid by a laying worker in a worker-cell until pretty much all the cells were already occupied.

But one valuable means of detection is not mentioned in the A B C; viz., queen-cells. Almost always, if there is difficulty of detection, one or more queen-cells will settle it. If there are plenty of drone-cells there may be no queen-cell; but in such a case detection is not likely to be difficult. If there are no drone-cells, then the bees seem to cater to the comfort of their pseudo sovereign or sovereigns by making a more roomy place in which to deposit eggs, and you find the queen-cell. In more than one case I have found not an egg in the hive, except one in a queen-cell, and that solitary egg settles the case in ninety-nine cases out of a hundred, the hundredth case being that in which a very poor queen has just commenced to lay in a too weak nucleus, and there never should be opportunity allowed for that hundredth case. But you will generally find more than one egg in the queen-cell. I think I have seen thirty or forty. They seemed to be piled up.

Of course, as soon as the brood is sealed the projecting caps tell the story; but it is not desirable to wait so long. True, the projecting caps don't say whether a laying worker or a drone-laying queen is present, but I wouldn't give much to know which. The same treatment will do for either.

So, in addition to what the A B C says, it might be well to add, as signs of laying workers, queen-cells with more than one egg in them, as also a queen-cell containing one or more eggs when there is no unsealed brood in the hive—only eggs. I am inclined to believe that laying workers do not commence operations until all the sealed brood has had time to hatch, but I am not sure of this.

In brief, satisfactory evidence of the presence of laying workers might be simmered down to this: More than one egg in a drone or queen cell.

CURE FOR LAYING WORKERS.

I think I have tried about all the different cures reported, and I am not sure that I would use any of them that contemplate the continuance of the colony, unless it be to get the bees to raise another queen. Taken early enough, the bees will respect a queen-cell; in fact, they are trying to raise a queen with their own useless brood; and if you give them a frame of good brood you may have a queen raised. But they might not raise a very good queen thus, and in any case it will take some time, and it is better to give them a sealed cell as near hatching as possible. I have succeeded by giving them a young queen just hatched. But after the affair gets to be chronic, and the rounded cappings are seen on the worker-cells, more heroic treatment is needed.

On the whole, I am not sure but it is best in all cases to resort to the heroic treatment of breaking up the colony. Just distribute the contents of the hive, giving one or two frames, bees and all, to each of several other hives; and if you wish any thing more continued on the same stand, just put another hive on the stand, having in that hive at least two frames of brood with adhering bees, and a sealed queen-cell. After you have experimented long enough at trying to save a colony with laying workers, I feel pretty sure that you will agree with me that the most profitable thing is to break up the whole business, and that it will be cheaper to start a new colony than to continue the old.

C. C. Miller.

Marengo, Ill.

CALIFORNIA.

LARGE YIELDS PER COLONY, AGAIN; SLIPSHOD BEE-KEEPERS IN THE LAND OF THE SETTING SUN; THE OTHER SIDE.

In Gleanings for Aug. 15 I read with interest the two articles on introducing queens. One of the writers expresses the opinion that the method given on your queen-cages is not good. I have just been introducing seven by that method, and six out of the seven are now accepted, and laying in their respective hives. I say, by *your* method; but, come to think of it, I did make a slight change. Instead of taking out the cork on putting the cage among the frames, I left it in and did not take it out until on examination the bees seemed to be walking quietly over the wire gauze and feeding the caged bees. On three of the cages, 24 hours after being in the hive, bees were clinging closely, biting at the wire, and wishing mightily they could get at those queens; but, left in a day or two longer, they became more friendly to the caged inmates; and, as I say eventually, all but one were accepted. When the bees have been in the cages for a week or more, as is often the case when sent from the East to California, so much candy in the cage is consumed that it is possible for the bees in the hive to eat through to the queen before it is good to have them do so; and therefore I believe it is good not to remove the cork until the bees seem friendly.

THE LIZARD, THE QUEEN, AND THE FLIES.

We have a great many lizards here, and I have often watched to see whether or not they eat bees; but I never caught one in the act till one which stays about my house — a species of pet — gobbled up a queen for me the other day. The queen, which had a clipped wing, had fallen to the floor, and was crawling about there. The lizard saw her from the rafters, and, quick as a flash, he rushed down the side of the house and swallowed her. Lizards are great destroyers of house-flies. I believe my pet catches a hundred or two every day. In extracting time, when my honey-bedaubed clothing makes me particularly attractive in the estimation of flies, the lizard will perch himself on my knee and catch them by dozens.

In my article in Gleanings for July 15th I mentioned Mr. Whittaker's yield of 419 lbs. of honey per spring stock as being the greatest amount to the hive ever produced here. Mr. Lechler, whose place A. I. Root visited on his first trip to California, takes exception to that, and mentions a crop of his own—18,763 lbs. from 30 spring stocks, or 625 lbs. per hive. His experience of that season and the one previous is illustrative of the ups and downs of the bee-man, as, the previous season, beginning with 130 colonies he got no honey, and lost, besides, from starvation, 100 of his stocks. Mr. L. was inexperienced then; but nowadays when his bees are starving he feeds them. He is buying sugar this year by the ton for that purpose.

It is a common thing here for persons with no experience to go heavily into bee-keeping; and as a general thing, too, before that experience has been acquired they experience some heavy losses. I know a man who, three years ago, was the owner of 800 hives of bees, and who actually knew not much more about the management of an apiary than we can suppose the poor creatures in New York do whom we read of as having never seen a blade of grass. Of course, he has not 800 hives now. If he has even 100 next spring he is in good luck. Many of the specialists in bee-keeping here know little more about the pursuit than putting the bees in a box when they swarm, and, when the box is filled with honey, taking it away. Look into their hives and you will find frames filled with drone comb in the brood-nest. Expostulation calls forth the retort that the bees know best what is good for them. Some will argue that drones help to keep the hive warm, forgetting that the workers which they have displaced will not only do that, but also help to keep the hive *cool*, which, in this climate, is ofttimes a more important matter; and it seems to me that the

GREATEST NUMBSKULL OF THEM ALL

should see the greater profitableness in rearing bees which gather honey, to rearing those that only eat it. The production of drones, like the coming of immigrants to our shores, should be restricted. Even in the apiaries getting the best care, there are many times more drones raised in the extracting-supers than are at all necessary. Of course, queens can be kept out of the extracting-supers by the use of queen-excluders; but for my part, I lost so heavily from my combs melting down a few years ago that I am afraid of any thing which interferes in the least with the ventilation of the hive. Some of our bee-men do use them, however, quite extensively. I have heard that one of them, a frequent contributor to the columns of Gleanings, leaves his extracting-supers on all winter, with the bees confined below by the excluders. If this is the case, and there are no quilts between the two sections to confine the warmth generated by the bees to the brood-nest, it appears to me he is committing as great a mistake as he who lets his bees fill the brood-nest with drone comb. By the way, one of our most successful bee-men, one who has 700 stocks, and produced some forty odd tons of honey the last good season — two years ago — does not have frames in the brood-chambers of his hives, but just two crossed sticks, as in the old box hive.

A CONFIRMED SET OF HEATHEN.

I am writing this from Needles, Cal., a place which A. I. R. should have stopped at if he is interested in Indians. Unlike those he saw at San Jacinto, these do not go to school. In fact, they are such a confirmed set of heathens that I am told even missionaries have given them up. Needles is a railroad town, and it may be the counter-influence and example which the population of such a town supplies which is too much for Mr. Missionary, more than the confirmed heathenism of the Indian. Christianity would certainly be to their worldly advantage, as their own religious rites demand the burning of all their houses, clothes, and other property, on the death of a relative, while their horses are killed for the feast which follows. As for the burning of their houses, I do not know but that it would be a good thing, from a sanitary point of view, if each householder were to lose a relative every month or so, as the stink which emanates from a long-settled house can hardly be equaled elsewhere on this earth. A pig-sty is a bed of violets in comparison. That their health suffers from so much filth is proven by the great number who are marked by smallpox. The faces of many of them are so full of holes that they resemble a big sponge more than any thing else. All Indians seem fond of bright colors, and some are more gaudy with them than any bird. I wish I could describe a squaw I saw yesterday. For brilliancy, rainbows and sunsets must take a back seat. Even her face was painted the reddest of red. I saw one boy who had gilded his face. Others have theirs striped with various colors. Some one has expressed the opinion that the Indians are descendants of the ten lost tribes of Israel. Is not that theory sustained by their love of colors? Did not Jacob present his favorite son with a coat of many colors? The bucks do considerable work in one way and another. I saw one gang going out on a hand-car to repair some railroad track. The roustabouts on the little steamboats which run on the Colorado River are all Indians. Yesterday a big six-foot buck, making pretense at cleaning up a yard, under a shady tree of which another man and myself were sleeping, affected great contempt for us, and remarked to his employer, "Heap lazy mans—all same squaw." But "all same," Pete, I believe you were envious of us, and would have been infinitely more happy snoozing under that tree than gathering up rubbish. Of an evening the stores here are literally overrun with the Indians; and any money which they may become possessed of is very quickly in the hands of the merchants. They are very fond of driving a bargain. I saw a young squaw bargain for some minutes with a Dago, over the price of a watermelon; and it finally turned out, when she had jewed him down to her figure, that she did not have a penny. Nor did the evident disgust of the Dago at the unprofitable result of so much bickering worry her in the least. Wm. G. Hewes.

Newhall, Cal., Aug. 25.

[Your suggestions on our method of introducing queens are good, and perhaps we had better incorporate them in the introducing directions for all queens sent to a distance. We expect, however, in the majority of cases, that the recipient of the queen at a distance will either slightly modify our directions to suit his own case, or else, as is more commonly the case, will use a method of introduction with which he is familiar, and with which he has had good results.]

BIG YIELDS PER COLONY IN CALIFORNIA.

I note Mr. Hewes' good common-sense article on page 542, in which he says 419 lbs. per colony is the largest yield he knows of, etc. I showed the article to Mr. T. C. Porter, who managed the San Fernando ranch in Los Angeles County, Cal., from 1874 to 1880. This ranch is only nine miles from Mr. Hewes' place at Newhall. Mr. Porter says he rented a small piece of land to a Mr. Loap, about a mile northeast of the San Fernando depot, in 1876, he thinks, on which were placed 80 colonies of strong hybrid bees. The whole region was covered with white sage and other flowers, and the range was almost unlimited at that time. Mr. Loap took from those 80 colonies a little over 444 lbs. each that season. He had in all 350 colonies in three different places in the immediate vicinity, from which he took in all over 68 tons of honey that crop. Of this, about 40 tons was sent to London on a venture, and netted half a cent above the local market; but, strange to say, the best pure water-white honey brought less than the darker and heavier grades in the London market, and they evidently thought the light-colored honey had been doctored. At that time the bee-ranges were not half-occupied; but now there are over 3000 colonies in that immediate vicinity.

Honolulu, S. I., Aug. 14. J. Farnsworth.

CULTIVATE THE HABIT OF OBSERVATION.

IT IS NECESSARY FOR THE BEE-KEEPER AS WELL AS THE FARMER.

Isn't it strange that so many people go through this world without observing the little things about them? Farmers, especially, fail to notice many interesting things in nature with which they constantly come in contact. I have talked with many farmers about the fertilization of flowers by bees and bumble-bees, and I do not now remember one who had any idea that they were indebted to the honey-gathering insects for the complete fertilization of the clovers. Although constantly in the fields, and, may be, aware that bumble-bees visit their red clover, they had not given them any credit for the work done in insuring a crop of seed. The nests, perhaps, are destroyed on sight. I venture the assertion, that nine out of ten farmers fail to give bees any credit for their valuable aid to agriculture. They have been reared in the midst of the most wonderful exhibitions of divine wisdom and beneficence, with the faculty of observation as blind as a bat.

There is one argument in favor of bee-keeping that ought not to be lost sight of—it trains the mind to observe. If he would make a success, the bee-keeper *must* train this faculty. If education consists in storing the mind with facts, and if observation leads one to investigate, prove, and apply, it is as good as a school so far as it goes. This is probably the reason that a successful bee-keeper is above the average in intelligence. He has learned to observe, and hence is continually gathering new facts and adding to his store of knowledge. If a person doesn't know the average season for white clover and linden to bloom, he is not likely to know when to put on supers or to be on the lookout for swarms; and if he doesn't know the source from whence comes this honey, he is likely to put on supers till frost comes. It sounds odd enough to charge bee-keepers with such a lack of bee-lore; but I know of persons who keep bees, and who are as ignorant of essentials as that. It is not necessary to add, that such persons never study books or papers on the subject, and that they never succeed.

But, study all we may, and read all we may, we need to cultivate the faculty of observation. There are always some problems in apiculture which can not be solved by a general rule. Each one must work it out for himself amidst his own environments. EUGENE SECOR.

Forest City, Ia.

RAMBLE NO. 67.

AT JOHN SMITH'S; ALFALFA-GROWING IN CALIFORNIA.

A short distance from the Rambler's apiary, and in the mountains, upon a ten-acre ranch, and with a small apiary, resides a man well known to every town throughout this broad land. Let me introduce you to the renowned John Smith. Mr. Smith has but six swarms of bees, and they receive no attention whatever, even in swarming time; but when he desires honey for his table a man is employed to extract once from the hives. This once extracting gives him enough for his table a year; therefore the man who desires only a few swarms to obtain honey for his own use will see in what an easy way it can be done here in California. While the bees seem to be so thoroughly let alone, and the swarms are going into the rocks at their own sweet will, the ranch is not neglected; and while passing it many times during the season I have been repeatedly surprised at the wonderful effects of water upon vegetable growth. Twenty months ago this ranch was covered with sage and chemise bushes; now there is a vineyard with such luxuriant growth as to cover the ground; an orange-orchard with well-developed tops that now have many oranges upon them; a row of eucalyptus-trees around the ranch has shot up twenty feet, and the growth is almost visible. But the most interesting portion of the ranch, and one in which every bee-keeper would be interested, is a two-acre field of alfalfa. When I first passed his ranch in February he was mowing it. I had been used to deep snows and cold winds at that time of the year, and it was indeed a novelty to hear the rattle of a mowing-machine. The crop in due time was drawn away, the water glistened again in the stubble, and in what seemed to be an incredibly short time the mowing-machine was rattling again, and the luxuriant growth was falling. As Mr. Smith halted at the corner I said, "Mr. S., you cut that field about three weeks ago."

"Oh, no!" said he; "it was six weeks. I cut it about every six weeks."

The six-weeks period seemed to go around so rapidly, that, on the 8th of June, while he was mowing again, I marked the date on his flume. "Now," says I, "*we* will see about this six-weeks business." I passed again on the 9th of July. Mr. S. was casting his eye over his well-grown field of alfalfa. Said I, "Are you thinking of mowing again?"

"Yes," said he; "I will cut it on Monday."

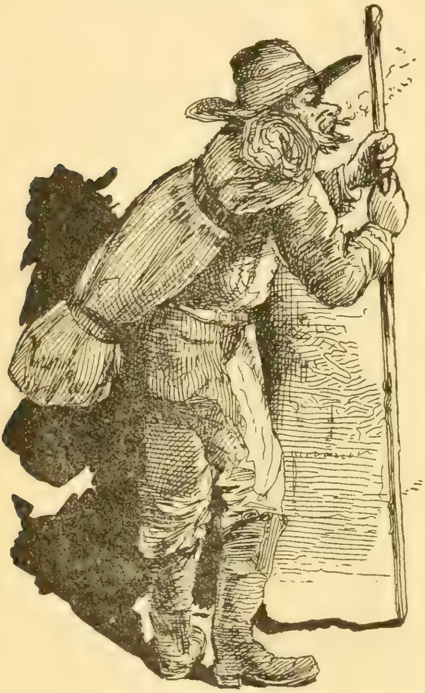
I then showed him the mark on the flume, and he was himself astonished at the rapid growth his alfalfa had made in a trifle over four weeks. The average time, however, the year round, is six weeks. Three tons per acre is the average yield, and $12 per ton the price; so an acre of alfalfa brings in quite a revenue in the course of a year. The chief interest to a bee-keeper in an alfalfa-field is its period of blossom; but our rancher defeats the wishes of the bee-keeper and the work of the bees by mowing it every time before it blossoms. If by chance he neglects to mow it until it is in full bloom the busy bee is there in great numbers to secure the harvest. Alfalfa will produce for a series of years if abundance of water is applied; and with a growing interest in it, and an increase in the number of acres, if the rancher could be impressed with the idea of allowing his alfalfa to bloom, it would make quite a difference in the honey yield in many localities, and especially splice out in a bad season like the present.

Witnessing the wonderful growth of tree and grass and flowering bush, it is no wonder that, in this land of sunshine and flowing water, are found the most beautiful homes that can charm the eye. Even the rude cabin can have its imperfections covered with the various-hued climbing rose. The oleander grows here to the dignity of a tree; and when the different-colored flowers are grown on one tree by grafting, they make a regal appearance upon the lawn. The pampas grass, with feathered plumes, is another object of beauty. The fan or ray palm is another unique tree much used in ornamenting a town. The Spanish bayonet, with its load of blossoms, and the evergreen and ever beautiful pepper-tree, lend their charms. The two latter are of interest to the bee-keeper as honey-producers. The pepper-tree, while in blossom, is worked freely by the bees; but the honey from it is of poor quality. All of the above, and many more trailing vines and flowering shrubs, lend their charms to beautify hundreds of homes in Southern California.

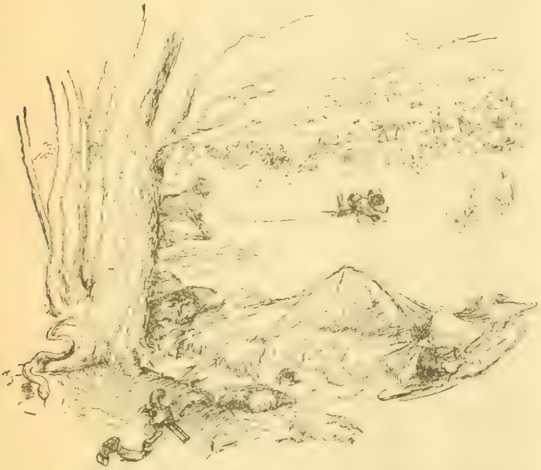
The science of irrigation is brought to such perfection here that water in many places is apparently running up hill; but when we get up on a level with the ditch we see it is only in appearance. The little gates from the main ditch are so arranged and worked that the amount of water in inches can be adjusted to a nicety; and the rancher or fruit-grower knows just how long to let so many inches run on to his land in order to secure its highest production. As we hear the little streams of water gurgling merrily along we are reminded of the old toper who was so overloaded that he fell into the gutter. His jug, with cork out, rolled beyond his reach, and the whisky gurgled out upon the ground. He imagined the gurgles said, "I'm good, I'm good." In his inability to rise he exclaimed, with a deep-drawn sigh, "Oh, yes! I know you're good, you're good; but I can't save you." The good of the whisky was, however, a misnomer, as the condition of the man indicated; but when our gurgling water says, "I am good," it speaks the truth, and the evidence of the truth is all around us.

While we pass the beautiful homes and admire them we are also brought face to face with the fact that the securing of many of them cost much labor and hardship. Many of these most beautiful homes are occupied by men who, in earlier years, rolled themselves in a blanket and slept under the stars of heaven.

To the young man who comes from the farm of the East, where he is treated with considerate kindness by his employer, it seems exceedingly hard to conform to the ranch life in this country. In a great majority of cases here the extensive rancher knows little about, and cares less for, the comfort of his laborers. He hires Chinamen, Mexicans, Indians, negroes, Dutch, French, Swedes, Jew and gentile; and a young man just from the bosom of a respectable family in the East, if he desires to work on a ranch, has to put up with the same fare as the common herd. Instances are related where young men from the East have hired out, and at night, after the tiresome toil of the day, asked the rancher for a place to sleep. He replied, "Why! I have 2000 acres of land here; you can sleep anywhere outdoors you please." Another young man was directed to sleep under an oak-tree. A farm hand is expected to furnish his own blanket, and he is easily distinguished as he migrates from one ranch to another, for he carries his (bed) blankets in a large roll strapped to his back. There are several advantages in this way of living—plenty of pure air, absence of bedbugs, but mice may frisk around the nose and try to curl the mustache. The morning toilet is necessarily simple, for many sleep with their boots on; hence the expression, eminently Californian, "Died with his boots on!" If he is a young man of grit and perseverance he will soon have a ranch of his own, and can tell new arrivals how *he* grew up with the country.



FARM HAND WITH HIS BLANKETS (BED) ON HIS BACK.



PLANTED, READY TO GROW UP WITH THE COUNTRY.

This great country of ours is getting quite thoroughly equalized in respect to wages and cost of living; and one point in particular the young rancher must consider, and that is, that Horace Greeley's advice, "go west, young man," does not apply to people here, for the great Pacific is a barrier to the tide of emigration, and hundreds come here only to return to the East again. The latter are mostly transients, for, after a year's sojourn, people seldom desire to leave this country.

The above facts in relation to ranch work were collected for the benefit of several correspondents who have written for the information. As to what kind of men are wanted on bee-ranches will be considered at another time by the RAMBLER.

THE CECROPIA SILK-MOTH.

SOME DELUSIONS DISPELLED.

Mr. William H. Allen has sent me this large handsome larva, or caterpillar — most people would say worm—for identification and description. He thinks them rare, as he has not seen one before for eight years. He adds that his hired man says they are poisonous (*sic*), *as one once fell on his hand, and in half an hour it was swollen to twice its normal size.* He thinks it feeds on maple, as he can find no other foliage that it will eat.

This is one of our largest, most common, and most attractive silk-moths. The caterpillar, except for the unfortunate prejudice which is bred into people, would be considered beautiful. It is as large as one's thumb, and nearly as long as the index finger. It is dark green in color, and has two rows of tubercles along its back. The six of these nearest the head are amber-colored, decked with black spines, while the others are light yellow, with fewer black points. On the tenth ring — all insects are made up of rings, or joints—there is but one of these tubercles which is larger than the other yellow ones. The four hinder tubercles are blue. On each side are two rows of bluish tubercles. The six true, jointed legs, near the head, and the ten large pro, or prop, or large fleshy legs on the other end of the body, are dark green. These insects feed on apple, basswood, maple, and many other kinds of foliage. As apple leaves are preferred, we may well call this insect the apple silk-moth. Its scientific name is *Platysamia cecropia*, hence the name I place at the head of this article. Mr. Allen says he has not seen one for six years. The green color so resembles the leaves that he does not see them. My students, or the little boys here on the college campus, would find a score in less than a week were they living with Mr. Allen. Still, these are not *very common*, because of parasitic enemies which feed on them. Much as they resemble the leaves on which they feed, yet they can not evade the sharp-eyed parasites, and so are often preyed upon and destroyed. The statement that they are poisonous is all a mistake. Myself, my students, and even my girl when she was not more than four years old, handled these beautiful larvæ as fearlessly and as safely as if they were pet kittens. They never yet poisoned any one. These larvæ spin large, loose, dirty-white silken cocoons in the trees, in which they spend the winter as pupæ. These are easily found in the leafless apple-trees in winter; and, if gathered and put into a box in our rooms, we shall rear the large brown showy moths the next May or June. The moths are very large and showy, and in a collection always attract much notice and comment. We often rear many of them in a single season. They rarely do any great harm, as they have so many enemies that they do not become very numerous. They are, however, great feeders; and were they more common they would be serious pests. Yet by use of the arsenites—London purple or Paris green—we could quietly exterminate them, even if they were destructive. Now that we know that, by adding a few pounds of thoroughly slaked lime to each hundred gallons of Paris green or London purple and water, we render it harmless to vegetation, while yet poisonous to insects, we shall find this even more valuable than formerly for killing insects. A. J. COOK.

Agricultural College, Mich., Aug. 27.

NOTES FROM THE BICYCLE.

ERNEST'S TOUR AMONG BEE-KEEPERS.

I made the trip of nearly 400 miles, and now after having been home for a couple of weeks find myself none the worse for wear; on the contrary, I believe I'm even better for the "kicking," yes, in the best condition physically or athletically, if that is the better word, that I have ever been. I wasn't sick or ailing when I left home, but I fairly ached to get out in the common roads again. I am no crank, I hope, but somehow I do like to push a crank while riding on my hobby, a Victor pneumatic bicycle.

Before we go on, perhaps you will ask, What is a pneumatic wheel? It is one having two-inch hollow rubber tires pumped up full of air. These tires being soft and springy, that is, resilient, pass over slight inequalities of the road without jar to the rider. For instance, if you were to strew a lot of pebbles on a hard floor, and then run a pneumatic-tired wheel over it, you would scarcely, if at all, notice the difference between the level floor and the portion covered with the pebbles, because the latter bury themselves, as it were, into the tire without affecting the even course of the wheel. If you still don't understand the pneumatic, ask the small boy for further particulars. That piece of inquisitiveness is constantly pushing and squeezing tires with his hands whenever a wheel is at rest.

On the last of August I set out from home with my *necessary* luggage strapped to my handle-bars. I carried only such as I thought I would actually need, not even carrying a small revolver to keep off the dogs that are—well, as the other fellow said, "the confounded nuisance of every bicycle-touring expedition." Perhaps I'll tell you about the dogs later. A. I. R. accompanied me about five miles from home to give me a good send-off. After leaving him to pursue his way on another road to a market-gardener's place, I quickened my pace to a ten-mile gait. Wellington, 20 miles away, was reached in two hours. Twenty miles more, which was run in another two hours, brought me to East Townsend, the home of H. R. Boardman. By the roundabout railroad course I could not have reached it in as good time, so I was ahead in railroad fare, in exhilaration of spirits, and in time.

AT THE APIARY OF H. R. BOARDMAN.

Happily I found him at home and in his shop with his helper, scraping and crating filled sections for market. He did not recognize me at first. My beard had been shaved off and I was set off in a sweater, knickerbockers, and a Canadian helmet hat. Covered as I was with dust from the road it was not much of a wonder that he did not know me as the former Ernest that had called upon him some two or three years before.

As soon as I had explained my identity I asked what his honey crop had been. He had secured this year the *finest* lot of honey he had ever taken, and indeed it was nice. I tried to induce him to sell it for more money than he was asking, but he shook his head, saying that he would have to adhere to his original quotations. Then I began to press him as to the *quantity*. He didn't know exactly, nor, in fact, did he want to know. I inferred that he would just as soon have had more. Strange how bee-keepers are alike in this respect!

Mr. Boardman had made some elaborate experiments during the last spring in feeding. He was satisfied that, had he not fed liberally, he would have secured little or no honey. When the honey did come (the brood-nests being well supplied), it was, as a matter of course, forced into the sections. The result of his experiments in feeding, both as to the time and manner in which it was done, was exceedingly interesting; and it is no more than fair that I reserve this for him to describe himself at some future time.

The thing that struck me forcibly in the apiary was the great strength of the colonies. Most of his hives were two-story, and evidently crammed full of bees; and, while the majority of them were hybrids, they were quite peaceable. His home apiary, as some of you may remember, is in an orchard; and large, luscious Queen Ann apples were dropping every now and then upon the hive-covers. The bees seemed to take all this as a matter of fact. During all the time we were in the apiary, not a single bee offered to molest us—not even when we stood right in front of the entrances, obstructing their flight.

BOARDMAN'S SOLAR WAX-EXTRACTOR.

During the past summer Mr. Boardman had been melting up a large number of odd-sized combs with the solar wax-extractors. He had three mammoth-sized ones (the same as was illustrated in GLEANINGS, p. 50, 1891), the dimensions of the sash being somewhere about 3x6 feet, and with these he had rendered out several hundred pounds of wax. I asked him what he did with the residue, and he pointed me to a couple of barrelfuls. This he burned. I suggested to him that, if he would render this with sulphuric acid, as recently described in GLEANINGS, he would secure enough wax to more than pay him for his trouble. He did not feel so certain that he would, but promised to make the experiment; we shall, therefore, all be interested in the result.

After we had walked about the yard, looking at this and that, Mr. Boardman again took me into his shop and showed me some unfinished sections that had been filled out by being fed back with first quality of extracted honey. It was very easy to see where the new lot of honey had been joined on, as it were, to the old; and the sections altogether had an inferior look. The conversation gradually turned to automatic hivers. My friend felt rather doubtful about their ever coming into general use in the apiary. The expense, and trouble of attaching them, were two serious objections, he thought. With the swarm-*catchers* he was greatly pleased. These, the reader will remember, are to be attached by the apiarist to the entrance of the hive from which the swarm is just issuing. The flying bees are caught in a large cage, and are then hived on a separate stand—the bees (except the first few that come forth) not so much as even getting into the air.

After sampling a few of those great luscious Queen Anns we made our way to the sweet-clover patch. The bees were still working on it busily, although his cow had been browsing on it, cropping it down during the early part of the season. This cow has learned to eat it in preference to any other clover in the yard when she can have her choice.

It was now getting dark, and I told my friend that I would have to take my wheel and hurry on to Norwalk, from which point I was to start in the morning for Fostoria. Bidding him adieu, I mounted my wheel. Just before I got into the town I saw ahead of me three fellows who seemed to have imbibed just enough liquor to be "gloriously happy." A shepherd dog accompanied them. By the way, these dogs are the meanest animals we encounter. Well, these three chaps thought it would be just fun to set that dog on me, and, of *course*, he came at me with all speed. As is always my custom, I dismounted. But this seemed to make no difference to the dog. He ran around one side of the wheel and I the other, when finally I espied a small boulder. This I let fly at him with all my might, but to no purpose. If I could have had the pleasure of hearing it crash against his side (just as I did at another time with another dog) I think my temper would have been cooled off somewhat; after all, the dog ran as if for dear life. As the three men came up after I had vanquished the dog, I turned and said, "This may be fun for you, but not for me. Wait till I catch *you* wheeling some time." At this one of them seemed disposed to show fight. Now, I did not think it would look very well to be seen fighting, even if I had an equal chance, so I mounted my wheel, and, putting on full speed, said, "Good day," and left the trio contemplating the wheelman vanishing ahead of a cloud of dust.

AT S. F. NEWMAN'S.

Next morning it rained. From all appearances the rain would not stop for several hours—at least it would rain enough to get the road muddy and slippery. In the mean time, while waiting for better prospects, I called upon S. F. Newman, at his insurance office. His main business is insurance, for bee-keeping is simply a side issue, or a recreation which he took up some years ago. As a bee-keeper he has been quite successful. At one of his outyards the farmers have been induced to grow peavine or mammoth clover, and it is now grown so extensively that he had secured every year considerable honey from it. Farmers did not have to be urged to grow it any more, because they found it to be a profitable hay crop. The honey itself, the finest quality, was by some pronounced to be not unlike that made by bumble-bees.

I made Mr. Newman only a short call, as I was anxious to get started. I went out upon the street, and it was still raining and the thermometer in a neighboring drugstore gave me no encouragement. Still I decided to push on, mud or no mud, rain or no rain; and how I regretted it I will tell you in my next.

Ernest.

SMOKERS AND THE REVIEW.

PROFESSOR COOK AND THE BICYCLE.

Friend Root:—You can not know how I enjoyed the last *Review*. I have long thought the Bingham smoker by far the best. I could not understand how any one else could differ with me. To note that I am in line with bee-keepers generally is very pleasant. The new smoker has two substantial improvements. By the way, what a splendid paper the *Review* is! I am proud of it and its editor as Michigan products.

Apropos to the subject of smokers, a word as to friend Larrabee's amusement at my class and myself lighting the shavings in the smoker. Will it seem unfair for me to say that we were also amused to see Mr. Larrabee try and fail? We tried two or three times; he only once, when he went in and got dry shavings. The trouble was that suggested by Miss Emma Wilson — the shavings were damp. Moral — Keep the fuel dry. All fire-making depends upon the principle of keeping open a draft, or giving a passage for the oxygen of the air, which must come or the fire goes. Any one who can not build *any* fire, under reasonable circumstances, is either stupid or ignorant of the principle on which combustion rests. The other morning I saw "the girl" trying to light the fire with a newspaper doubled as it goes to the office to be mailed. She seemed very grateful when I showed her that a crumpled paper wooed the oxygen and won the flame. I should take it to be as much of a compliment to be told that I "did not know beans" as to be told that I did not know how to make a fire or light a smoker, no matter what the fuel.

I am glad, my brother, that you are riding the bicycle. I am with you. I ride a pneumatic Columbia a few miles each morning before breakfast. It is fun. It gives one great chestfuls of good air; it makes the blood fairly fly through the arteries, and invigorates the whole body. Saxe said, "God bless the man who first invented sleep." I say, "Amen," and add, "and the bicycle." It makes exercise a pleasure, not a mere duty.

A. J. Cook.

Agricultural College, Mich.

LADIES' CONVERSAZIONE.

NURSING UP NUCLEI IN THE SPRING.

MRS. AXTELL TELLS HOW SHE MANAGES TO DO BOTH THE WORK IN THE HOUSE AND IN THE APIARY.

Had we not taken away all the honey-dew stores from our bees, and put feeders into each hive and fed daily of sugar syrup, or every other day in May, I fear we should not have had any bees left. Even a few colonies in May seemed to dwindle, and many died outright; and very weak colonies would leave their hives. Six swarmed out in one day. The queens seemed to be the last to die; so, to save the queens, I fastened several to a bit of brood and honey, with as many of their bees as I could, by placing over them a wire-cloth cage pressed into the comb, and then placed several such combs into one hive with the rest of the bees. The queens would live in that way, apparently, as comfortably as if they had their liberty. When caged in small cages the bees died off rapidly, and the queens would crowd behind their bit of honey, and often die; but if given that large cage, about 3x5 inches, pressed into the comb, none were injured, that I could see. I tried to save some of the queens by sewing up cotton cloth and inserting thin comb, with brood and queen, and what few bees they had, into it and setting it into a strong colony at one side; but the bees would soon all die, and neglect the brood, and no good came of it. If left any time, the queen too would die.

Sister Harrison (and, I suppose, many others) said, I thought, "I told her so; that such fussing with bees will not pay;" but it did pay in more ways than one. I am confident we have many more colonies of bees than if left to themselves. The hot-water treatment was a failure, I guess. I am not quite sure but it did the bees a little good; but by taking out all the combs but just enough for the bees to occupy, some colonies had but two combs left; and then feeding daily in the hives, as I had strength to, saved many a colony, and each little colony was in the center of the hive with chaff on each side close up, and heavy carpets and quilts on top that I could lift and feed on top of the frames. Some of those two-comb nuclei are now built up into strong colonies, and are working in supers.

We have now 74 full colonies, the most of them in supers. About 50 have filled a 36-lb. super, and 8 a second super, 70 to 80 lbs.; 2, 90 lbs. We also have 50 colonies that I think will all be built up in time to gather the fall crop of honey, as we quite confidently look for one this year. We have had much rain, and 124 colonies all together. We bought 10 fair ones and 12 mere nuclei. We had but 35 colonies built up strong enough to put on supers at the beginning of our honey harvest, and none of those could be called good for that time of year (the middle of June); but they have increased rapidly since then. We have had ten natural swarms, and I prevented about half of them from swarming by taking out one comb of brood once a week in the center of the hive, each time taking out the same comb, which did not weaken the colony very much. If I took out two it stopped some of the colonies from working in sections, and one comb was sure to be filled with honey. One comb would not stop them from working in sections.

We began the spring by feeding outdoors; but we soon found they would not take in sufficient syrup to live on, even if we kept syrup in feeders all the time; and, being exposed to the sunshine, it quickly soured. We were never troubled by syrup souring before. We have always had such a cloud of bees that they would pounce upon it and lick it up and quickly ask for more.

Many of our colonies were so weak they would not take it up when given in the hives, except as we fed just a little daily. They were very slow to take it out of wooden feeders of any kind that we tried, so we bought a lot of deep four-cent pie-tins, and cut each one in two with the tin-snips we bought of you; and with the pincers we turned up an edge along the center where cut, which then held about a teacupful. In this feeder we laid a clean old cloth, and laid across it two corncobs, and set it on the frames under the quilt. Our best colonies would take the syrup out of those feeders lively, but the weak ones would not; so I took some old sections that were filled with drone comb, and having deep cells, and would fill three or four by laying them in a pan and pouring the syrup into them; and when I came to a weak colony I would take out their empty section and lay a full one on the frames, and lay a cob over the section. We have several such two-frame colonies now working in sections, paying me back for my work (not trouble) tenfold.

Last year we had our 225 colonies in three out-apiaries and at home. Last fall we brought home all from two out-apiaries, and this spring we brought the other one home, so now we have all at home. It is just a pleasure to care for one apiary.

I said I felt paid for caring for bees in more ways than one. This spring, as the bees were in such terrible condition, it pushed me out of doors to work sooner than I otherwise would have done, and my health has improved wonderfully, so that I have enjoyed better health for the past three months than at any time since I was a young girl. Having but the one apiary, and that so small to begin with, I have been doing all my own housework and three-fourths of the apiary work, as Mr. Axtell's health has been more delicate than mine, and he does not like to work with bees, and I do. It seemed quiet and nice to be alone one summer. This summer we are of age as bee-keepers, for, 21 or 22 years ago last spring, we brought home our first bees.

I can stand the heat of the sun so much better, and thrive in it, than the heat of the stove, or of work in the house, that I do all the housework I can in the morning, even preparing for dinner all I can, so that at 11 o'clock I have only to start my fire and place the food on the stove to cook, and I can rest most of the time while it is cooking, because I am generally pretty tired about then after doing up my morning work and working with bees for an hour or so. I do not like to work with bees before 9 or 10 o'clock, and in the afternoon they are more docile to handle than in the forenoon; and with a cool bee-hat and loose clothing, thinly clad, out under the trees to work, it is as cool as in the house, almost; then it is a "delight and a joy for ever" to me to be out with the bees and *see them grow*.

Roseville, Ill., Aug. 10. MRS. L. C. AXTELL.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

BEE-STINGS AND RHEUMATISM.

Being a reader of the *British Bee Journal*, I some time ago came across a few articles having reference to bee-stings as a cure for rheumatism. The subject had passed from my mind until just recently, when a particular friend of mine, who has suffered from this annoying complaint, was stating his case to me, and I at once remembered what I had read, and told him about it. His curiosity being aroused, he asked to see the letters; and after careful perusal of the same, he came to my apiary to try the effect of the remedy.

My friend is an ex-police sergeant, who has suffered acutely for years from rheumatism, and passed through the hands of several medical men, and spent seasons at various convalescent homes, undergoing various kinds of treatment, but all to no purpose. However, on Monday, the 11th of July last, he came to see me, suffering from severe pain in his right elbow and right ankle. With the help of my bees I gave him eight stings, three upon the elbow, and four upon the ankle. When he came he could not lift his arm, and it was with very great difficulty that he managed to walk a distance of two miles to my place; but twenty minutes after being stung he could work his arm about as freely as if he had never had any rheumatism in his life, and he walked away like a two-year-old. On the following night he came down to have another application, and told me he had not had so good a night's rest for six months, as after the bee-stings his pain was gone, and his ankle was three inches less in circumference than it had been for two years previously. I gave him sixteen more stings, six on each ankle, and four on the elbow, with the result that he was quite free from pain until the 27th ult., when he felt a slight return of his old enemy, and came for a third dose. I gave him another twelve stings, six on each ankle; and when I saw him on the 30th he treated me to a short hornpipe to show me the good he had received from his "little friends," as he called them. He is quite anxious for the case to be published, in order to ascertain if any case of permanent cure has been effected by bees. As for his own experience, he is quite willing to answer any questions with respect to it, and equally anxious to know if he may look upon it as a permanent cure, or only as a question of having ease for a time only; and if any of your numerous readers have had a similar experience, he would like them to state the particulars through your columns, and, in return, he will do what he can to satisfy them as to the genuineness of his own cure, so far as it has gone.—*Philander Jowett, in British Bee Journal, Aug. 11.*

INTRODUCING WITH PEPPERMINT CANDY; HOW THE SPIRAL QUEEN-CAGES MAY BE USED.

I notice Doolittle's way of putting candy in queen-cages when introducing queens. I have this season been using small button-shaped peppermint candies, such as I buy at the stores, and I crowd one in between the coils of my spiral wire queen-cage, and in a strong swarm I put in two and even three of these candies in different coils of the cage at the big end of the case, according to the time I want the queen to remain in the cage. The bees will usually release the queen in from 15 to 48 hours when only one candy is used. I have had very good luck in introducing this way. When I want to be certain about the time the queen will be caged I use the tin cover in the coils of the cage and the candy between the tin and the queen, and remove the tin when I wish to, and leave the candy in the cage; then the queen will leave the cage, when the candy is eaten through by the bees, in a quiet manner; and the bees, not being disturbed by handling the frames, etc., are much more likely to receive the queen, especially if this should be one of those swarms that are bound to receive no queen but of their own raising. In cool weather some swarms will ball and kill their own queen that has been in the colony a year or more. By handling their frames I have seen this done several times. N. D. West.

Middleburgh, N. Y., Aug. 18.

INTRODUCING QUEENS; MRS. JENNIE ATCHLEY OFFERS SOME SUGGESTIONS.

After trying all the plans known to the beekeeping fraternity, or all that I have seen mentioned, I like the candy plan best; but I do not like the directions usually sent out with the candy plan. First, by all means do not make your hive queenless until you receive the new queen; then at the same operation take out the old and introduce the new queen. Now, these instructions are for the inexperienced, as an expert will introduce safely almost any way, and I had rather leave the old queen in till ready; then I know your hive is queenless. But if you have had your queen out some days they may have some kind of queen you are not aware of, hence a failure. Of course, if your hive has by accident become queenless, get a queen for it as soon as possible, and save them. Now about the directions. Most of them say, let the queen remain 48 hours, and, if not out, release her. I say, do not do it, but lay the cage on the frames, or in some part of the hive, and don't touch that hive any more for *one week;* and now if you have been careful to take out the queen or queens, as the case may be, I will almost agree to replace every queen you lose, especially if purchased of me. When I say queen or queens, I mean at times there is more than one queen in a hive. For instance, a little while before a second swarm comes off there are from one to half a dozen queens; then at other times there is a very old queen and a young one laying at the same time together; so, now, you see we can not be too careful in introducing queens. Jennie Atchley.

Floyd, Texas, Aug. 19.

[Our printed instructions for introducing queens agree substantially with your directions above. We caution our customers against tampering with the hive after the cage is laid upon the frames.]

CONGREGATING OF DRONES; AN INTERESTING CASE.

Having noticed articles in the bee-journals this season about drones congregating, I will relate what I saw about 30 years ago. While out one day in August, bee-hunting, I was about half a mile from our own apiary. There was another apiary over two miles away; there were also two fields of buckwheat. The lines crossed at the point mentioned, on a ridge near a piece of woods. We carried the bees to this point to determine whether there was a swarm there or not. About 40 or 50 feet from the ground there was a multitude of drones. It looked like a very large swarm of bees. They were chasing each other, and having great sport. They acted just like the male flies you will sometimes see hanging motionless on their wings, then darting at each other or any luckless worker-bee that chanced to fly near them. As the lines to the two apiaries crossed, there were a good many workers flying at that point. It was about 3 o'clock in the afternoon. I watched them for more than an hour. They were still at it when I left, although in diminished numbers. We knew they were drones by their size and the noise they made.

J. R. Common.

THE OTHER SIDE ON THAT ARIZONA HONEY.

Friend Root:—We take pleasure in handing you herewith a check for $28.50. in settlement of the Shelton affair. We should like to know just what Mr. Shelton's real loss was. We want to say that this is the only complaint we have ever had, except from that one carload, and we have sold quite a quantity. Last year we sold 1577 cases; this year, so far, 1487 cases. We sold three carloads besides that one, that same year, with no complaint, and our honey is in demand wherever sold. Perhaps it would be but justice to us to say this in your journal, for you gave us such a going over, and spread the news far and wide. S. T. Fish & Co. sold three carloads in Chicago; Thurber, Whyland & Co., New York, sold two, and yourself sold two. R. A. Burnett, of Chicago, sold the rest, except a part of one car sold in Fort Worth, Texas.

Phœnix, Ariz., Aug. 13. J. A. R. Irvine.

"BEES CARRYING EACH OTHER OFF;" INJURED BROOD.

Friend Root:—I am having exactly the experience that your correspondent, Wm. Miller, Esq., of Emporia, Kansas, describes in Gleanings, August 15. But can't you tell us something more definite about the *cause* of bees becoming paralytic? Those that are being carried off are "shiny black," etc., just as you describe the paralytics, both in your answer to Mr. Miller and in A B C, under "Diseases of Bees;" but in neither place do you tell the cause, except in the suggestion that "they may have been injured in the brood form," which, you will admit, is rather indefinite. Now, at the risk of its being regarded as a ridiculous idea, I will make the following statement: Early in the spring I frequently noticed small black wasps loitering about the entrances; and when the coast seemed clear they would quickly dart into the hive, sometimes returning in a moment, and sometimes remaining inside for several minutes. Do you think it could be possible that they injured the bees in the brood form? The paralytics look very much like half-bee and half-wasp. JOHN T. SILER.

Berkley Springs, W. Va., Aug. 30.

[No one seems to know the cause of bee paralysis. It is no doubt a germinal disease. When the conditions are favorable the germs find lodgment, and grow. Perhaps this is all we can say of it until further investigation is made. It is impossible that the black wasps could have had any thing to do with the matter at all. Extremes of temperature, cold or heat, insufficient nursing of the larvæ, poor honey—all are liable to injure the brood; and the result is more or less imperfect bees—bees with defective wings, legs, etc. These, of course, are carried away by the other bees as of no further use in the economy of the hive.]

LEUCOPHYLLUM TEXANUM.

Prof. Cook:—Inclosed you will find a specimen of a shrub that grows wild in this vicinity, called by Mexicans "cenecia," which name is adopted by the Americans of this place, and by this mail I send a package of the leaves. This shrub blooms after every seasonable rain, the year round, and at times bees literally swarm on the flowers, and at other times scarcely notice them. The leaves have, by several families here, been used for tea instead of the Chinese article, and is said to have disclosed a medicinal quality in purifying the blood and curing colds, dyspepsia, and various disorders of the digestive organs and nervous system. One of our neighbors, who had for years been in ill health, has been habitually chewing, consuming, and swallowing small quantities of the leaf, and is now strong and vigorous. I should be pleased if you would give, through GLEANINGS, the botanical name of the shrub, and such characteristics as you may be able to discover.

F. VANDERVOORT.

Carrizo Springs, Texas, Aug. 15.

This plant is *Leucophyllum Texanum.* It is a species of the *Scrophulariaceæ,* and so belongs to the figworts. That it secretes honey is not to be wondered at when we remember how profusely the common figwort of our own woods secretes nectar. We may call this the Texas figwort. The plant is about as light-colored as the white sage of California. It is a good thing to get all these honey-plants on record. It may pay to try to grow this one north, and see what it will do. It would equal some of our common foliage plants in beauty, if it would grow here. I see no reason why it might not do well.

A. J. COOK.

Agricultural College, Mich., Aug. 22.

MR. BALDENSPERGER ON THE ROUTE TO MARSEILLES, FRANCE.

I am on board a French steamer, with 50 nuclei of Palestine and Cyprian bees, bound for the Marseilles bee-exhibition of October next. The bees are packed in the ordinary way; that is, frames fixed with distant racks, and covered at the top of the hive with wire cloth. Some of the bees got through, and were flying as if they were at home, without disturbing any of the passengers. I was afraid the "Palestines," with their stinging propensities, would prove dangerous; but some of them on 13 frames (10x12) have come out by the hundreds. It amused the captain to see me troubled about the masses of bees. He tried to be kind, which was a great consolation to me. The captain, Mr. Isnard, of the Gironde, must have a vote of thanks herewith, and a share in the good success and hoped-for arrival at Marseilles, expected to take place August 18. PH. J. BALDENSPERGER.

Alexandria, Egypt, Aug. 13.

BEES OF A NON-SWARMING AND NON-HONEY-GATHERING TYPE; THAT QUARTER-ACRE FARM.

The more I read GLEANINGS the better I like it. I'm getting interested in that quarter-acre farm. I think I will venture a few steps in that direction next spring. Bees in my vicinity have been of the non-swarming type and non-honey-gathering too, for that matter, for this season there has been none to gather. But we are like the old banker, when told that the bank had been robbed. He replied, "They got all the money, but they left us the bank, and we ought to be thankful for th t." We have got the bees, and we are very thankful for that. I like Dr. Miller's Stray Straws; and if Rambler doesn't get all the best of them, we might bind some golden sheaves. L. B. WEBB.

Lynchburg, Va., Aug. 29.

THE PRAYING MANTIS.

J. M. Harris, Cedartown, Ga., sends me one of our most curious insects. It is the "praying mantis"—*Mantis Carolina*—and is sometimes called the "Devil's race-horse." For figure and description, see my "Bee-keeper's Guide," page 427. It is called "praying mantis" from its curious forelegs, which, from their peculiar attitude, suggest that of supplication. They are very predaceous, and often kill and eat bees; indeed, they are said to eat each other up. The male is smaller than the female; and it is said that he often is eaten by his spouse as the last act of the nuptial ceremony. I think this insect may be counted as a friend, as it destroys many of our insect-foes. I do not think it kills bees enough to change this verdict.

WHY QUEENS SOMETIMES BECOME BARREN.

Miss Gertrude S. Luther, Fairview, Pa., sends a queen that has become barren. She wishes to know the cause. I speak of this in my "Bee-keeper's Guide." In some way the queen has been injured. The reproductive apparatus is very delicate and sensitive, and we do not wonder that it occasionally becomes disturbed and even disabled. That this queen was ailing, appears from the fact that she arrived dead. She was sent in a cage with twelve workers. She and two workers were dead; all the other workers were well and lively. She may have inherited some weakness, or have been chilled or balled, or in some other way injured. Such disability is met among all kinds of animals. Cattle with tuberculosis are very apt to become barren. Examination shows the ovaries to be the seat of extensive microbe affection. Thus any malady, constitutional or acquired, may affect the reproductive organism, and impotency result.

WAX SCALES.

F. M. Humphrey, Oronoque, Conn., sends me three bees with wax scales on the under side of the abdomen, and asks me to state in GLEANINGS whether they are not abnormal, and why they are there. These are simply the white wax scales of which the comb is made. It isn't strange that they are rarely observed nowadays. We use so much comb foundation that bees need but little wax, and so these scales are rarely seen. I find it hard to find them unless I hive a swarm or colony on empty frames; then it is easy to find bees laden with these scales. We thus see that wax secretion is voluntary, and is practiced only when the bees need comb.

I think that the bees control this by eating much and exercising little when wax is secreted. A cow worked hard would give but little milk. When the bees work hard they can not secrete wax. Mr. H. will find all about wax in any of the excellent bee-books. A. J. Cook.

Agricultural College, Mich., Aug. 27.

MR. LANGSTROTH'S EAR-TRUMPET.

Mr. Root:—I can heartily indorse all Mr. Langstroth says on page 663 in favor of the ear-trumpet. I have used one like it for three years, and find it a great help, as I am very deaf. With its help I can hear conversation that would be inaudible to my unaided ear. The price is very reasonable, as I paid $7.50 for the first one I owned.

White clover was a failure in this section this year, but we got an average of 20 lbs. of nice white honey from basswood and sumac; very little swarming. F. W. Humphrey.

Oronoque, Ct., Sept. 3.

ALLEY'S HIVER.

Bro. Alley has sent me two self-hivers, and each has caught a swarm since their arrival. They will catch the *whole swarm.* There is no mistake about it. The reason is, that the bees, in leaving and returning to the old hive in their every-day labors, pass through the hiver; and when they swarm, the queen is caught near the outer entrance of the hiver; and when the bees return they stay in the hiver with the queen.—*Bee-keepers' Review.*

PUNICS BAD STINGERS.

I got one of H. Alley's $5.00 Punic queens last September, but they are good only for stinging, and packing propolis. It is a pretty hard matter to find a Punic queen when you want to.

No honey crop here, and very little swarming. From 40 colonies, spring count, I have taken only 300 pounds extracted and about 70 pounds of comb honey.

Roodhouse, Ill., Aug. 16.

H. Marden in The Progressive Bee-keeper.

NOT A TOTAL FAILURE OF THE HONEY CROP IN CALIFORNIA.

I think your correspondents ought not to say *total* failure of the honey crop here. While it has been total in some localities, other localities are getting considerable honey. I learn that, in Eldorado County, the yield is 100 lbs. per colony; besides, there have been dozens of carloads sent from Southern California.

Riverside, Cal., Aug. 10. John H. Martin.

THOSE HOFFMAN SELF-SPACING FRAMES.

I bought six of your Dovetailed hives with self-spacing frames, and I like them much better than any other frame and hive that I have seen. I shall want some more next spring. I get them from Mr. Posson, our seedsman.

Allow me to say this much for Oregon as a honey-producing State: She can produce as fine honey in appearance, and as fine in flavor, as can be found anywhere; but we lack in quantity, no doubt. We have an abundance of clover, but it does not learn to yield much honey. There is no wild basswood. Peas, clover, and fireweed are the main honey-producing plants here. Joel Bowman.

Portland, Or., Sept. 3.

My crop for 1892 is 16,000 lbs.

Middleburgh, N. Y. Wesley Dibble.

UNCLE TOM'S CABIN OF SPECKLED BEAUTY.

TWELVE MONTHS OF POULTRY LIFE; AN INTERESTING CHICKEN-STORY FOR THE JUVENILES. BY MRS. AXTELL.

When I was a wee bit of a chick my first consciousness was when I was all cramped up in a bunch, struggling to get out of my shell. I made a desperate leap, and out I sprang, chirping as I came. Mother Biddie bade me be quiet, as she was watching over me, and cuddle up close under her wing. I was very quiet for a time, when I began to feel something very annoying, biting and running over me and trying to get into my eyes. I could not keep still, and my little brothers and sisters complained of the same. Mother Biddie would stand up and pick herself every once in a while, so she stepped on and killed two of us. She did not intend to, but she could not sit still, so annoyed was she.

Mistress Brown said she was a naughty biddie to thus tramp her chickens and break her eggs; but mother Biddie told her it was she who was to blame, because she did not put ashes in the bottom of her nest, with a little straw on top, and sprinkle insect-powder in all cracks and corners of the nest, box, and through her feathers. She said, "Do you not see how I ruffle up my feathers when you come near, so if you would spray the powder above me it would fall all through my feathers, and these annoying hen-mites would soon be gone, even before one of my downy chicks had hatched?" Mistress told her she would grease her under the wings, and us chicks on our heads, as she had raised chickens many years. I guess she forgot how much to use, and put on too much; for we all looked slick, and two of us died, and the rest of us did not feel very well either. Old mistress said she must use but the least trifle of grease next time, and may be she'd better try the Persian insect-powder.

She took us out of our warm nest and put us into her apron, one on top of the other, and then went to another nest and got a lot more little soft downy chicks, just like ourselves, and put on top of us, in her apron, and doubled mother Biddie up under her arm by holding one leg and her neck in the same hand. Mother Biddy felt indignant to be carried in that way, as she says she is a very quiet and peaceable hen, and deserves gentle treatment. As a merciful man is merciful to his beast, so a merciful woman is merciful to her chickens and bees.

Mistress Brown sprinkled insect-powder through our mother's feathers, and took us out to a nice large coop on the green grass, and gave us some nice food to eat, as we had been hatched three days, and had not tasted food; but we were a big lively brood of chicks, 24 of us all together. We cuddled up under mother Biddie's wings at night, and when it was cool and rainy.

When the sun shone warm we ran out on the green grass, and were very happy. One little sister said she felt very badly because we nearly crushed her when old mistress put us all into her apron.

One wet and rainy morning mistress took her to the house and said she would wrap her up and put her by the stove; but mother Biddie said she had better not have mashed little sister, as prevention is better than cure for little chicks. Little sister never came back to us again.

One night it rained very hard, and the water came through the coop and ran in on all sides, and we had to stand up in the water. Just think of it! little soft downy baby-chicks standing in cold water! How could they help catching cold? By morning the water had run away; and we had, as many of us as could, crawled up into mother Biddie's feathers, and were nearly dry; but it was cool the next day, and the warm sun did not shine on us for several days; so we just stood around on the cold damp ground, and chipped until our throats were sore in trying to tell mistress how badly we all felt. Two of us drooped our wings and died because of the dampness; then mistress said the coop must be put upon higher ground, and a board floor put in.

Mother Biddie said it was better late than never, but she thought an ounce of prevention would have been better than a pound of cure, and so it proved, as two more of us drooped and died, so there were but nineteen of us left. But it gave all the more room under mother Biddie's wings, and we were very happy when the sun shone on us. We would flop our wings and run after the flies, and kick and scratch with all our might.

Little Clara used to laugh so loud to see us scratch the ground and flop our wings, she now had that as her work to feed and water us. Sometimes she gave us so much that we could not eat it up in all day, and we would have it pretty well tramped down, as she would put it just where we wanted to run; then at night she would put in more food, so we could not eat it all up, and mother Biddie must have something to do, so she scratched it around in the coop, stirring our food up in the filth in the coop.

Old mistress said she hadn't time to clean out our coop, and so we had to eat that dirty, unhealthy food all day. Mother Biddie said if she would just turn a small box down in front of our coop, and put the food in, that would be nice, as we could all go in and get clean food; and old Robinson that crew so could not stick his long head and neck in, and eat so much of our food, and his mates could not trample on us so badly.

Our drinking-water was even worse than our food, for little mistress hadn't been taught to rinse out our water-dishes each time, but just put water in the dishes day after day, when they were nearly half full of filth that mother Biddie had kicked out of our coop.

Now, gentle reader, would you have liked to eat such food and drink such water? Wasn't it too bad to be treated in that way, as mother Biddie said we were the loving Father's little sparrows, and not one of us could die without his notice?

Some of us did die, and lay there in the coop until the heavenly Father sent great green flies to lay eggs that would soon hatch out into worms that would quickly remove the dead chicks, or I guess we would all have died, so neglected we were.

Old mistress did not mean to be unkind, but she said she hadn't time to look after us, and trusted us, so frail and tender, to the care and inexperience of little mistress Clara.

One night, I shall always remember, we were very happy when we gathered under mother Biddie's wings, as she was teaching us to make the best of life, and rejoice and be happy in what we had, instead of repining and wishing for something we could not have. But she seemed to know there was danger, as a big rat hung around our coop, gathering up some of the food we left. Mother Biddie would cackle, and try to tell old mistress of our danger; but we were so far from the house no one could hear her, and our coop was near an old brush-pile, where he quickly ran and hid when mistress Clara came near. As the floor of our coop was laid on the ground, other rats came with him, and they dug out a nest for themselves under our coop.

One night they thought they would have some meat as well as bread, and so they caught and killed four of my little brothers and sisters, and dragged them under the coop. Mother Biddie squealed with all her might, and so did the rest of us, which this time brought old mistress out to see what was the matter; but as the old rats had run under the coop she could not see any thing. She went back to her soft quiet bed, scolding because we had disturbed her slumbers. As we could talk only chicken talk we could not tell her our troubles and her losses.

Mother Biddie said that it was the way we had been neglected, all the way from the time the eggs were hatched up to the present time, that only fifteen out of twenty-four were alive and only half grown. It was just that neglect that made poultry-raising a failure with so many, and that negligence is so often to be seen everywhere on the farm—the reason farming often does not pay.

Mother Biddie is now three years old, and she knows a great deal; but she can't tell mistress what she does know. One thing she knows she would not like to tell her if she could; and that is, that it doesn't pay to keep old hens, as, every year after they are three years old they lay less and less eggs, and are more apt to die during molting time, and it would pay old mistress better in dollars and cents to kill off the old hens while they are fat and healthy, for master's dinner, and not leave them to die of themselves. Mother Biddie says there are many hens that don't lay eggs at all; some of them were injured when they were pullets, and have never laid more than a few eggs, and yet they are kept from year to year with nothing to do but to eat and take up the room in the henhouse; and yet mistress does not know this. If she did she would clip the wing of every hen that wanted to set. Soon every good hen would be marked, and those that were incapable of laying eggs could make potpies for master, though master doesn't deserve potpies of us, because he sets the dog on us when we get into the barn or garden. The dog so frightens us that we fly against the barn, and into such places as hurt us inwardly, and are ruined for laying eggs ever after; and the hired man throws clubs at us, which makes us wild, and we often run and fly when there is no danger. Mother Biddie says if everybody would always treat us kindly we would be very tame, because we, being Plymouth Rocks, are a very gentle breed of chickens.

Master Williams, who owned mother Biddie until she was a grown hen, always spoke kindly to her, and she often ate out of his hand when he came around. If he did not give her food she would jump up and bite his hand, or pull the leg of his pants, to remind him to give her something to eat. He generally understood what she meant, and would pull out of his pocket a few kernels of corn, and stroke our feathers, and we would look straight into his kind eyes, and he would call us wise children; but we knew it was he that was wise to treat us so kindly and care for us so carefully that few of us died while young, and we were all so well and hearty we could do a chicken's best for him. He bragged of us, and told what good poultry we were, and how well we paid him. He said he could make much more money out of poultry by requiring every person and every animal to treat us kindly, and not frighten us. I remember how well we all liked his big dog Towzer. If any one of us squalled, Towzer came bounding out to see what was the matter. He never ran us nor tried to catch us, but would run off all the minks and skunks and rats, and would just as gently put his nose up against us, as if to assure us we need not fear him. Mistress Williams would always call Towzer to go with her when she went to close the hen-house at night. He would go in with her and quickly run around and look in every corner and behind the boxes; and if any thing was hidden there he quickly caught it or scared it out. Mrs. L. C. Axtell.

Roseville, Ill.

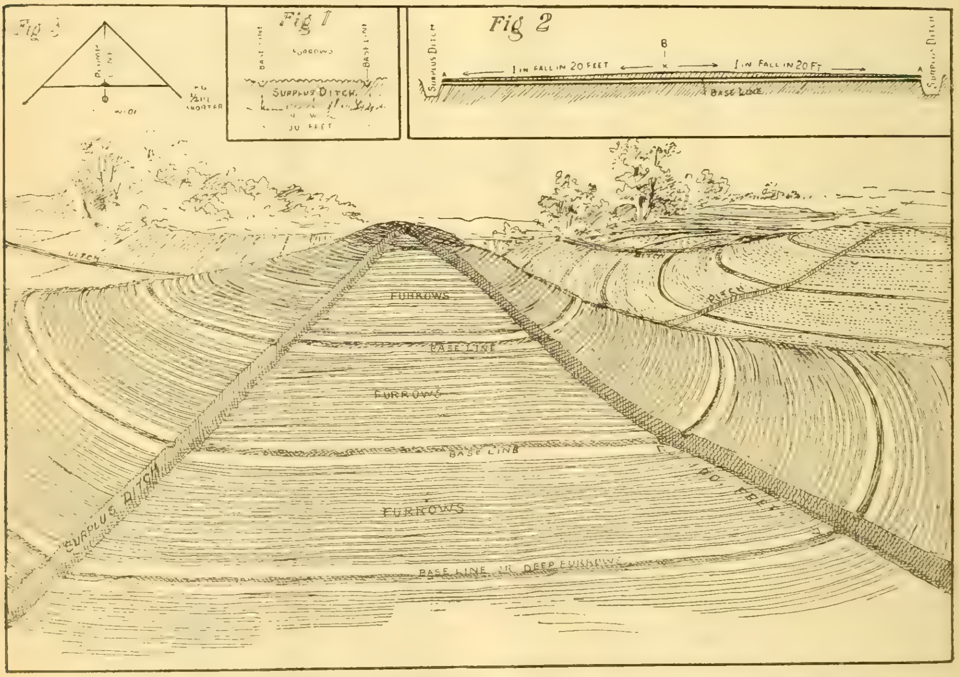
[*To be continued.*]

HIGH-PRESSURE GARDENING.

BY A. I. ROOT.

A MATTER OF GREAT IMPORTANCE TO ALL WHO CULTIVATE THE SOIL WHERE HEAVY RAINS AND FRESHETS PREVAIL.

After the tomato-book was all finished, I submitted it to friend Day, and asked him to make an appendix of whatever he thought should be changed or enlarged upon. The result is something that, my impression is, will be worth millions of dollars to the farming people of both north and south, and east and west. The following is a brief letter from him, introducing the matter:



FRIEND DAY'S PLAN FOR TERRACING AND FURROWING THE HILLSIDES, TO PREVENT WASH AND GULLYING.

On page 5 you say, in circling my land I give one foot in twenty. This is entirely too much fall, as it will cause the land to wash. Now, I consider this land-circling a great thing to lead off the water without washing the land, if it is done scientifically; and I will say one *inch* in ten feet is enough fall. Some use only one inch to *sixteen feet* fall. I herewith send you a diagram of a cheap leveler. It is simply a large compass made of three thin laths, about two inches wide by one inch thick. The two lower ends should stand just ten feet apart, and the tops nailed together. The cross-lath should be 15 inches from the ground, and a notch exactly in the middle, so when the plumb-bob hangs in the notch it is right. The leg that is one inch the shortest should be carried in front if you are going up hill; in the rear, if you are running the way the water is to go. This gives one inch fall to ten feet. We lay out a base-line about every 100 feet, on a hillside, then the rows can be filled in between. I will try to make a drawing.

We always have a plow to make a light furrow, and follow right after the leveler, in laying out the base-lines. Sometimes it leads you contrary to your wishes, but it is always *right*. J. W. Day.

Crystal Springs, Miss., Aug. 9.

With the above came a diagram from which the engraver has been enabled to make the sketch below.

You will observe from the picture that we have taken a piece of unusually rough country; in fact, the engraver has given us the summit of two quite sharp-topped hills. The hills are so steep, that, should we attempt to plow and enrich them for ordinary market-gardening, the heavy rains that occur in most parts of the United States at least occasionally, would wash all of our fine rich soil, and a great part of our fertility, clear down into the valleys, or off into the rivers; therefore we commence clear up to the summit, making open ditches.

These are to take the water and carry it straight down hill, out of the way. Of course, the surplus open ditches come quite near each other toward the summit of the hill. As we go down into the lower ground, however, they get further and further apart; and, in fact, they may be half a mile apart if the lay of the land favors making the base-line ditches as long as that. But these base-line ditches must all be worked around the hillside, or uneven ground, in such a way as to carry them almost at a dead level—not quite dead level, however, for they are to drop as much as one inch in twenty feet, and not more than one inch in ten feet. This pitch, or fall, will let the water off each way into the surplus-ditches, the highest point being usually midway *between* the two surplus-ditches. Thus there will be a middle point in the base-line where the water goes each way. These base-line furrows are a hundred feet apart. After they are all graded and laid out, then we must make furrows for our tomatoes, peach-trees, or what other crop is raised, between the base-lines, and parallel with them. You will notice that this kind of work breaks up entirely the plan of straight furrows, unless the lay of the land should favor us to an unusual extent.

In order to do our cultivating in working the ground to advantage, we should endeavor to get rid of *short* crooks in the furrows. But it is much more important to get rid of the water than to have straight furrows for cultivating; and if the curves are large, there need not be any particular hindrance to the work.

The additional diagrams, Figs. 1 and 2, will make the whole matter plain, without further explanation.

From what I have seen of the washing and cutting and gullying in the South, especially in what they call the "red lands," I am sure that this plan as given above by friend Day is a matter of the greatest importance in many localities. It is almost impossible to work the greater part of the land up to a high state of fertility, for either fruit or vegetables, without making provision for the heavy rains and the surplus water; and even here in our State of Ohio I have been coming to the conclusion more and more, as each season passes by, that we *must* have surplus-drains as well as *under*-drains. The great market-gardener of Green Bay, Wis., Mr. J. M. Smith, has been for years working on almost this plan, except that, as his ground is so nearly level, it does not make such a showing as the plan we have given.

Another thing in regard to this plan of terracing or furrowing: Every year that passes makes it more evident that, sooner or later, irrigation is going to be used by all who are engaged in high-pressure gardening. The market-gardeners around Boston and New York do not think of risking their expensive crops without provision being made for watering in times of drouth. Windmills with tanks, and steam-pumps, are on hand, to be brought into requisition when needed. Well, this plan of terracing fixes the ground exactly as you want it for irrigation. Carry the water to the highest point in the furrows, and let it flow each way, and the fall is exactly right. A neighbor of mine who raises blackberries on land that is not worth more than $50.00 or $75.00 per acre has drawn water in barrels for his blackberries during a time of drouth, and he says it paid big. He had berries when they were a failure elsewhere, and, of course, got big prices accordingly. Another man secured a tremendous crop of onions by watering them with a force-pump. He worked the pump while his wife directed a stream of water through a hose. Nobody else had any onions, and so he got over a dollar a bushel for his. Once fixing your ground, after the manner given in this article, lasts a lifetime. Even on lands where gullies are cut by very heavy rains, by a little careful watching, and prompt repairing where the water breaks over and goes directly down hill, you are master of the situation; and where the ground is brought up to its highest state of fertility by tilth and manure it is terribly expensive business to have it cut up and washed down into the streams.

Please notice that, in this kind of terracing, little if any plowing or scraping is to be done. The level which friend Day has described is simply walked around the hill, curving the furrow so as to strike ground that is neither too high nor too low — that is, when you are laying base-lines about 100 feet apart. The ditches along these base-lines are to be kept carefully permanent, so the water runs in the furrow and does not break over and run straight down hill.

OURSELVES AND OUR NEIGHBORS.

For unclean spirits, crying with loud voice, came out of many that were possessed with them.—ACTS. 8:7.

Am I my brother's keeper?—GEN. 4:9.

This matter of unclean spirits, so often spoken of in the Bible, has for ages past attracted considerable attention; and I believe the general verdict is, that we have nothing of that kind now—that is, nothing just like what is described in the Scriptures. Perhaps the whole thing belongs to the age of demonology; but for all that, I can not help thinking that human beings nowadays are often possessed with something that might be appropriately called an unclean spirit. By reading the fifth verse of the same chapter from which this text is taken, you will notice that it was through Christ's name that these unclean spirits were banished; and, indeed, on one occasion we are told that the spirit that possessed a man talked back, as it were; for we read in Matt. 8:29, "Behold they cried out, saying, What have we to do with thee, Jesus, thou Son of God? Art thou come hither to torment us before the time?" From this it seems as if the spirits themselves seemed to recognize that, where Jesus, the Son of God, was, they had no abidingplace. And this kind of unclean spirit that I have been thinking of seems to come under the same law. They can not exist in the same heart where the spirit of Christ has found an abidingplace. Let me now give you some of the evidences that we meet with in our day, to show that unclean spirits are among us.

A few days ago an excursion passed over our grounds on its way to our little lake a few miles from here. I have before spoken of the piece of track that unites our two railroads, passing through our grounds; and I am happy to tell you, that, during the past summer, no Sunday excursion has ever passed over it. The excursion I speak of, therefore, was on one of the week-days. The locomotive on one of the railroads drops the cars on our curve until another one can come from the other road to pick up the cars; therefore the excursionists stopped on the track close to our factory for several minutes. Almost as soon as the cars stopped, some of the passengers began jumping off and looking about to see what was to be seen or to be found. Now, this is all right and proper. I like to see people who are traveling, wide-awake, and with eyes open, that they may take in all that is to be seen. A party of young boys came up the walk toward where I was standing. They opened the different doors and made inquiries for something, and seemed evidently disappointed. I finally walked toward one of them, to see if I could give them some assistance. He was a nice-looking boy, perhaps fourteen or fifteen years old. His fresh young face looked almost childish, and there was a sort of innocent look about it, although at the same time he had a little bit of swagger about his manner, probably put on because they were on a holiday; and I thought that, perhaps, at his age he was just beginning to feel that it was time he should act like a man and appear manly. His first question was something like this:

"Can't we buy any cigars or tobacco around here?"

I replied, "No, my young friend, I do not believe you can get any in this part of the town."

I was about to add something further; but a boy just behind me interrupted me by saying, "Why, what a God-forsaken place this is, anyhow!"

I opened my mouth again to assure him that it was quite the contrary; but still another boy, a little further behind, began such a string of oaths and curses in regard to Medina, this part of the town, our establishment, and the owner in particular, that, before I had a chance to collect my wits so as to make even a word of remonstrance, the bell rang, and they scampered back to grab hold of the moving cars, and off they went. The boys were soon gone from sight, but not the memory of them. It haunts me still, and troubles me. The boys probably came from an adjoining county; but they were *Ohio* boys, even if they do not belong to this county. Their ideas of enjoyment, even at their tender ages, seemed to include tobacco as the one thing especially needful. May be they do not use it every day—at least, I hope they do not. Perhaps it was because they were off on an excursion away from home and parents that prompted them to go in a whole crowd for tobacco. May be they do not *swear* ordinarily in the impolite way they did then; but yet I *fear* they do.

Yesterday was the last day of our Medina County fair. I was around through the grounds more than usual. I felt anxious to study humanity. I wanted to know about the *boys* who are brought up on our farms. Of course, you all know I feel an anxiety about our crops and our harvests; but I hope I am telling you the truth when I say I feel a hundred times *more* anxious about another kind of crops and another sort of harvest. "What shall the harvest be?" Well, even on the fairgrounds my ears were pained, almost everywhere I went, by profanity. Nobody was angry, nor even vexed. They were just talking in a neighborly, sociable sort of way, and yet they could not talk over commonplace matters in a friendly, quiet way, without oaths and curses sprinkled in at times with fearful and alarming frequency. Dear friend, is this state of affairs true in your locality and in your neighborhood? Do boys and men swear so commonly that it seems as if it were a second nature? God forbid. I have been of late so much among young people who belong to the Endeavor Society that I had begun to think that this low-lived barbaric age was passing away; but the two experiences I have given you have given me a setback. What will be the result if a large portion of our boys grow up this way? Frequently the profanity was coupled with obscenity. The two go together. Yes, and this is why it has seemed to me that an *unclean* spirit was getting possession of our boys. I asked the question at one of our mission schools as to where these boys were brought up. I had been telling them the incident I first related. Somebody replied out of the audience, that the boys were not brought up *at all*. Oh! yes, they were. They had a sort of bringing-up, and they are, to a certain extent, well informed. They go to school and they read the papers; but somehow or other they do not get a glimpse of that pure and better spirit that would banish impure and unholy talk. The very spirit and the very influence that prompted these boys to seek tobacco would prompt them to seek also intoxicating drinks. One is a stimulant, and so is the other. Tobacco paves the way for the stronger stimulant, and the two together make the boy brutal and ungentlemanly. They fit him and educate him to give loose rein to his worst passions when he gets old enough—yes, a great many times *before* he gets old enough. If this kind of seed is being sown throughout our land, is it any wonder that we have anarchy? Is it any wonder that men pay ten dollars for a seat to see two men fight each other as a couple of dogs might fight? No, no! Dogs are never so low and brutal—I beg their pardon. How many men went from your neighborhood to New Orleans to see the recent prize-fight? If nobody went, how many men and boys—yes, women too—helped to spread the news that one man had pounded the other into a "bloody heap"? It has pained me to talk about it. It is behind the times. I can hardly conceive how it can be possible that, in these days of Y. M. C. A.'s and Christian Endeavor societies, such a scene can be enacted right here in our land of liberty. The papers tell us that, in our neighboring city of Cleveland, a "seething mass of humanity" gathered together to get the first news from New Orleans, and that the excitement ran as high as it did during the war, when great issues were at stake. I may be mistaken; but it seems to me that every man, woman, or child who makes an inquiry, who helps circulate reports, at least indirectly gives some sort of encouragement to this very thing. People are curious about it, and anxious about it, and this helps to sell the papers. The railroad companies like to see it kept up, for it makes trade and traffic, and stirs up excitement. Is it not an unclean spirit that is at the bottom of it all?

Of late I have been out in the world more than I used to be when I was first writing these neighborly papers. I am acquainted with more people than I used to be; yes, I have acquaintances—perhaps I might say neighborly acquaintances—among almost all classes of people. A couple of burglars or housebreakers have been for some days in our county jail. I have had so many neighborly talks with them that I began to consider them as almost personal friends. They have told me of their lives, and of their spiritual experiences, and I still believe that they told me the truth, even if they did break out of jail since I last saw them, and commit *more* burglaries since then. Now, in getting acquainted with all sorts of people I know how a great part of humanity feel, and I know how they think. There are some very good friends of mine who use tobacco. They think I make too much fuss about it. Perhaps they would say that these boys I have described to you are not such very bad boys after all. I think some of them would tell me that, if I would keep track of them, I should find the greater part of them would make tolerably good men and law-abiding citizens. Well, boys do sometimes turn out better than we expect, and sometimes they turn out *worse* than we expect. I should like to submit the question to any one—yes, I should like the opinion of those who do not accept the Bible as the word of God, and who do not see any thing so very bad about tobacco, or even strong drink. Let me present it to you. These boys stepped from a train into a new locality. They saw from the signs near or over our door that refreshments and fruits were for sale. As tobacco is so often sold in such places they were not very much to blame for thinking that tobacco was sold here too. But now comes the test of the gentleman. The boys soon discovered they were among a different class of people from what they were accustomed to. I am told that some of them, as they opened the doors, inquired for beer and whisky. They saw on the sign, B-E-E-S; and, being in haste to make their purchases before the train started, they read it B-E-E-R instead of "Bees." I suppose the B-E-E-R is more common to the eyes of travelers. How is it in your town, my friend? Well, when they saw they had made a mistake, and that the whole lot of us were what *they* might call a "puritanical" class, then, instead of submitting to the customs of the place where they happened to be landed, they commencing cursing the people right to their faces. Does tobacco make boys ungentlemanly, or is it the habit of swearing? One of our old pastors once made the remark, that infidelity is the most uncourteous and ungentlemanly thing the world has ever invented. There are not many people in the world who advocate swearing. Skeptics, however, often say there is nothing particularly wrong about it. But after reasoning with them some, however, I believe all have admitted that it is a very uncourteous and ungentlemanly thing. Where a crowd of people get to swearing, I think anybody of good sense and fairness must admit it is bad. It is bad for boys to swear. Swearing almost invariably accompanies drunkenness and crime. What prompts it, anyhow? A man who has no control over his temper, I believe almost always swears. It seems to be a sort of indication that the man or boy is more or less of a savage. He does not control himself, and does not *try* to do so. He does not scruple to let *all the world* know that he puts no restraint on his worst passions. It is prompted by an unclean spirit, even if you make the best of it. If he has any self respect, or wishes the world to know that he has respect for himself, he certainly should not swear. I have often wondered, with the great amount of swearing we have in public places, that the morals of our country are as good as they are. When I hear so much of it I wonder that our jails and penitentiaries are not filled to overflowing to such an extent that more than half of the guilty ones go free. There *is* a law against swearing, it is true; but public sentiment has not yet backed up this law to the extent that it is very much enforced.

We are told that, in olden time, the name of Jesus Christ the Son of God was a perfect antidote for all unclean spirits of every description; but we are also told that it was the *only* remedy, "for there is none other name given under heaven," etc.; and it seems to be true now. When a boy can be made to realize that his heart is sinful, and that an unclean spirit lurks therein, then he is near salvation. People may break off from using tobacco; they may quit swearing; they may even promise themselves and promise their friends that they will give up the practice of repeating low-lived and filthy stories; they may sign the pledge; and I would by no means discourage any of these undertakings; but the unclean spirit can never be *completely* cast out and banished *for ever* until that pure spirit of Christ finds a lodgingplace in the heart—that spirit that said, "Love ye your enemies, and do good to them that hate you." Dear friend, do you not realize the contrast? Do you not long to be one among those who are hungering and thirsting after righteousness? If so, then let me beg of you to join a Christian band. You will not have to go far to do it. The church of Christ is found in every neighborhood. Scarcely one among the thousands of those whose eyes rest on these pages but can easily find a minister of the gospel inside of twenty-four hours. The little church in your locality may be sadly run down, and the professing Christians may be altogether a poor lot. If *both* of these things are true, then the need is tenfold greater that *you* should help to restore it. Oh! I beg of you to go and attend to it this minute. Drop this paper you are now reading; go and assure God's ministering servant who lives nearest you that you are ashamed of yourself, and that you will hang back no longer. Tell him you want to *help* in the work of banishing uncleanness and impurity from the hearts of all men; study God's holy word; ask him to help you build up that little church; kindle anew the heavenly flame in that run-down Sunday-school; wake up the members of that Endeavor society if they have gone to sleep. With the spirit of Christ in your heart, go to work among the *boys* in your own neighborhood. Discourage profanity, and show them that there is something *better* than tobacco when they start out to have a holiday or a good time; and when you go, remember that your old friend A. I. Root is praying that God's Holy Spirit may go *with* you, and that you may be successful in holding aloft the banner of Christ Jesus; that you may be successful in driving out and keeping away the unclean spirits that have been and *are now* the sworn enemies of all that is good and pure and holy—the sworn enemies of the Lamb of God who taketh away the sin of the world.

NOTES OF TRAVEL

FROM A. I. ROOT.

IN ARIZONA TERRITORY.

It was raining, and after dark, when we took the train at Colton, bidding good-by to California and the Pacific coast. I greatly longed to make all this trip by daylight, but it was impossible. There is only one train a day over the Southern Pacific, and therefore it is out of the question to see a great part of the road by daylight unless you *happen* to pass it in going the other way. I especially wanted to see that new lake that has recently been formed by the overflow of the Colorado River. I asked the porter whether it was true that they were obliged to take up the track; but he said it was not. At one time they feared they *would* be obliged to do so; but efficient engineers succeeded in giving directions so that the overflow has been at least partially stopped. The railway, however, runs close beside the great lake where formerly we had what they called the bed of the dried-up ocean.

As soon as any thing was to be seen at all, Mrs. Root and I were pressing our faces close to the window of the sleeper. It was just getting daylight when we passed through Yuma, at the extreme southeastern corner of California. This town has become celebrated because it is about the hottest place on earth—at least they give it that reputation. When the light enabled us to see plainly, we began studying with much curiosity the wonderful objects along the desert of Arizona. The queer cacti, taller than the telegraph poles, were objects of great interest. Every thing is odd and quaint and weird in Arizona. Its vegetation is unlike that in any other part of the world, and the mountains themselves make one think he is in fairyland instead of in the United States of America; and when the strange mirage puts in its appearance early in the morning, one might readily be excused for feeling that he was in an enchanted land in earnest. I am not ready just now, however, to speak of the mirage. It did show up—at least, on that particular morning. At Gila Bend (this word is pronounced *Heela*) we encountered the first strange group of Indians. As the train stopped, the crowd gathered about a blind Indian boy who was playing on a fiddle. His instrument was a very rude one, wires supplying the place of strings to a considerable extent. Although his eyeballs seemed incapable of any sort of sight, he put out his hand for a nickel very readily when it was extended to him. As he began to gather in the coins, quite a crowd of Indian men and boys, and girls and women, gathered about him, the older women exhibiting specimens of their pottery. Many of them had babies in their arms, and seemed quite willing to have the passengers notice them and ask questions. However, they did not or would not talk. I tried in vain to find out what tribe they represented. They either did not know or would not tell. Somebody suggested the Kodak they had seen me using; but a bystander remarked that, the instant I showed it, every last Indian would vanish with a hustling. I thought, however, I could disarm their prejudice, and so I brought the instrument and begged permission of an Indian woman to take a picture of her baby. So long as the instrument was shut up in its case they paid but little attention to it; but when the lens was pointed toward them, consternation seized upon the whole group. They either beat a hasty retreat or covered their heads with their shawls; and when I tried to explain, I found they could make themselves understood pretty well, whether they could talk or not. The woman who had the baby said something that sounded like "No, no!" putting up her hand in protest, and shielding her baby with her shawl. One of the passengers explained that they have a superstitious belief in the "evil eye," and this machine was the very thing embodied. Whoever it looked at was bewitched, or destined to meet with misfortune of some kind. Not an Indian would face it; therefore I succeeded in breaking up the group in a twinkling. The blind fiddler, hearing the melee, put off with the rest. But he had been making too much money to give it up just yet, and so he rallied near the forward end of the train, and his friends gathered about him. I confess I felt a little guilty about it, but I did slip up and catch a picture of a part of the group before they knew what I was doing. Here is the picture.

THE BLIND FIDDLER AND HIS INDIAN FRIENDS WHEN THE KODAK SURPRISED THEM.

You will notice that every one, except the little chap with the calico shirt (excepting the fiddler, of course), has either covered his head or turned his back. Some of the young squaws would be tolerably good-looking if they would keep their faces, and especially their noses, a little cleaner. Instead of covering themselves so as not to feel the chilly morning air of winter, they seemed to prefer getting out into the sunshine. Then if the sun is not warm enough, they stand (or, rather, sit) and wait for it to get warmer. If, in consequence of the chilly air, their nostrils become clogged, they do not take the trouble to blow their noses, but just let the accumulations run down their faces—"letting Nature have her own way," as some of the bee-friends put it. Sometimes when it becomes very obnoxious, the mother will take her fingers and give the child's nose a squeeze. She does not wipe her fingers or nose with her apron or dress, as her more civilized sisters do, but she just lets it dry on. Please excuse me, dear friends, for telling these unpleasant things ; but it serves to give you an idea of the habits and ways of the untrained savage. Before I brought out the Kodak they seemed very pleasant and sociable among themselves. A young man of eighteen or twenty sat on top of the picket fence, and leaned over so he came quite near a rather pretty-looking squaw; and right before the groups of passengers they carried on quite a little flirtation — that is, it seemed to me it might have been "quite a little flirtation" if both parties had only had decency enough to wipe their noses. My hand would almost instinctively keep going into my pocket with the view of loaning one of my soft silk handkerchiefs. Finally somebody brought up an old chief who was willing to have his picture taken provided I would pay him something for it. He shook hands, and seemed real glad to see me, and he conversed quite freely—that is, to the extent of his vocabulary, which seemed limited to a few broken commonplace sentences. As he looked a little more respectable than the rest I naturally took him to be the chief of the tribe; and when I asked if I might take his picture (touching the Kodak) he assented with just as great affability and condescension. But he immediately put out his hand for the pay in advance. I gave him a dime, but he signified that that was hardly sufficient for such a distinguished personage. He did not say "Big Injun" in words, but his manner put it with great emphasis. Then I gave him another dime; but still he shook his head. Then I threw in a nickel more to make it an even quarter. But when he found that that was the most I could be persuaded to give him he pulled his shawl over his head and beat a hasty retreat like the rest, leaving me with my instrument for the passengers to laugh at.

Their houses are of the rudest and most primitive description. Many of them can not be entered in a standing posture. Most of them are covered with weeds and then with clay. I intended to get a view of some of these Indian dwellings. The buildings you see above the heads of the people are some belonging to the railroad company. All the rest are rude huts without even a window, and many times nothing in the shape of a door but a piece of burlap or some old sack hung over the opening. At Maricopa Station, where we changed cars for Tempe, the condition of things is somewhat improved; but all the towns along here are mostly nothing but railway stations in the midst of the desert. So little attempt has been made at agriculture, that nothing like a decent home is to be seen, aside from the hotel and the station. Some attempts have been made in the way of agriculture and farming between Maricopa and Tempe; yet, so far as I could see, the most of such ventures have been abandoned until we arrive at Tempe. Here we begin to see miles of irrigated and fertile fields covered with alfalfa and different kinds of grain. Of this I will tell you more in my next.

GLEANINGS IN
BEE CULTURE
A Journal Devoted to Bees and Honey and Home Interests
Illustrated Semi-Monthly
36 Pages 7×10
$1.00 Per Year

FUNDS received for India famine sufferers now amount to $21.00.

WE are pleased to learn that Bro. Newman's health is better. We hope that, with his lessened responsibilities, his health will continue to improve.

THE *Progressive Bee-keeper* says that four horizontal wires on medium brood foundation for L. frames is a grand success in their apiary. Just our experience exactly, Bro. Quigley.

REFERRING to the article in another column on honey analysis, Prof. Cook writes, after having seen a proof of our footnote, as follows:

> The expense is borne by our Agricultural College, Kentucky Experiment Station, and Department of Agriculture. Please add, that we are not through yet. We shall go clear to the bottom, so we shall positively know all the truth. We must analyze many more samples. A. J. COOK.
>
> Agricultural College, Mich., Sept. 12.

"SUPER-CLEARERS" in England is the name used to designate what we call in this country "bee-escapes." Perhaps the former is the more accurate term; but then, bee-escapes are used not only for ridding bees from the supers, but also from buildings, when attached to windows or doors. Reports are now coming in to the *British Bee Journal*, showing that super-clearers are giving excellent results.

REPORTS regarding Punic (or, rather, Tunisian) bees are now coming in quite freely through the bee-journals. Outside of the statements of those who breed them, with perhaps one and possibly two exceptions, the reports show that the new race is decidedly undesirable. While they are, in some cases, admitted to be good workers, there seems to be a general agreement that they are cross, and bad propolizers. Indeed, a correspondent in the *American Bee Journal* says, "They are the worst bees I ever saw."

WE have just been informed that a certain commission house in the east refused to give full price for first-class white comb honey, simply because the shipping-cases which contained it were made of *cream-colored* basswood instead of *white*. This is decidedly preposterous and unjust. It looks as if the house were trying to beat the bee-keeper out of his just dues.

THE *American Bee Journal* has just incorporated in its columns a new department, called "In the Sunny South." It is to be conducted by Mrs. Jennie Atchley, of Floyd, Tex., a well-known writer and queen-breeder. The first installment, beginning with the Sept. 1st number, is good, and no doubt will maintain its initial standard of excellence. It's a good scheme, Bro. York, especially for the far-south readers.

WE call special attention to the leading article, by Prof. Cook, in this issue, on honey adulteration and its analyses. It gives us strong hope that we may be able to ferret out and locate honey adulterations, punish the guilty parties, and thus at last put an end to a practice that, we fear, is getting to be too common. The fact is, the mixers have been hiding behind the impression that glucose could not be detected by analysis or taste; but it looks now as if they could do so no more.

HERE is another of the many evidences of the good work of the Bee-keepers' Union. We extract the following from the latest issue of the *American Bee Journal:*

> John Foulkes, near Dubuque, Iowa, sued his two neighbors who kept bees, demanding temporary injunctions, compelling the owners to remove the bees. As they were members of the Union, the General Manager took charge of the case. The result is, that Judge Lenehan refused to grant the injunction, because it would "interfere with a business which the courts recognize as legal."

A NEW OR OLD BEE-KEEPERS' UNION.

A NEW bee-keepers' union, or the old one with a modified constitution, is a proper topic for discussion. It is opened by General Manager Newman, in another column. We talked with a number of bee-keepers at Detroit, and the impression seemed to be that the old union should not be meddled with. On the other hand, it is urged that the old union is in splendid working order, and can, with a very slight modification of the constitution, be made to prosecute adulterators. It seems to us it would be more economical to have one union, the office of which should be to defend bee-keepers from unjust persecution on the part of ignorant neighbors, and at the same time help them prosecute and put down adulteration. General Manager Newman should be retained, but he should have competent assistance.

GOLDEN-YELLOW OR GENTLE BEES.

OUR golden-yellow bees are not proving to be as gentle as our leather-colored stock from imported mothers. As there seemed to be a rage this season for yellow bees we began producing them. We are now getting complaints that the temper of the bees is not of the good quality of the queens we sent out a year or so ago; and yet if we send out those same queens again, we shall be, as we have been in the past, roundly abused because the *queens* themselves are not golden yellow. Which horn of the dilemma shall we take? If our advice is asked we recommend bees that are gentle and good workers, without reference to the golden yellow. We can produce one kind of bees just as well as any other, and are willing to supply to the trade what it calls for; and that is just what every queen-breeder is willing and able to do.

A SUGGESTION TO QUEEN-BREEDERS.

THREE and five banded *queens* are now being advertised quite extensively, both being listed at the same price. The probabilities are that the so-called five-banded queens, if untested, will show in their workers three and not more than four bands—the five-banded bee being the exception. Is it not a misnomer to call queens three and five banded? It is not the *queens*, but the *bees* they produce, that are supposed to bear the three and five bands. The reason we speak of it is because we have one quite serious complaint from a customer who had sent for a five-banded queen from one of our advertisers, and received a queen that was not banded at all. We tried to explain the matter to him, saying that the name applied, not to the queen, but to the bees. But the customer would not be satisfied, and blamed us for accepting advertisements that do not read as they mean.

THE DETROIT EXPOSITION, AND OUR OPINION OF THE HONEY DISPLAY.

IN our bicycle tour we did not go very far into the heart of Michigan—that is, no further than Detroit. We there had the pleasure of meeting a number of prominent bee-keepers—W. Z. Hutchinson, of the *Review;* M. H. Hunt, of Bell Branch, near Detroit; H. D. Cutting, of Clinton, Superintendent of the Honey Department; J. H. Larrabee, of Lansing; the Boyden Bros., J. H. and A. L., of Saline, Mich.; and last, but not least, Dr. A. B. Mason, of Auburndale, O., who followed us the next day after our arrival. We believe we have often said that the best thing about conventions, for us, is the "between-session" feature, when there is an opportunity for visiting with bee-keepers face to face. This was one of the pleasures we had at the exposition, around the honey department.

The honey exhibits were something unusually fine. That of M. H. Hunt was not only extensive but unique. It would be simply impossible to give any adequate description of this or the other exhibits. The novel feature of Mr. Hunt's display was a booth, set off with sheets of beautiful foundation, cakes of wax, and cases of honey. The booth proper covered a floor space of 8x32 feet, and was 14 feet high at the archway, and the entire exhibit comprised the length of 64 feet. The floor of the booth was nicely carpeted, and there were such things as a lounge, easy-chairs, and other conveniences of the home. After our bicycle-tour of some 75 miles in the last few hours, the aforesaid lounge was highly acceptable. We were covered with dust, and our knickerbockers were torn quite badly as the result of a fracas with a dog. Mr. Hunt kindly dusted us off, and, later in the day, showed himself to be quite an adept with the needle and thread—articles which brother Hutchinson kindly furnished. Our suit was of a dark blue, and the thread white; but Mr. Hunt skillfully concealed the white stitches.

The honey exhibits of Mr. Hutchinson and of the Boyden Bros. were also beautiful and unique in their way; and Mr. Larrabee, the judge, had a hard task before him—one which we did not envy him at all. There were but few exhibits at the exposition that excelled in beauty of design, and in size, the exhibits of honey, as a whole; and the educational effect must be tremendous in the State of Michigan. It is a pity that other States as a rule do not do as well.

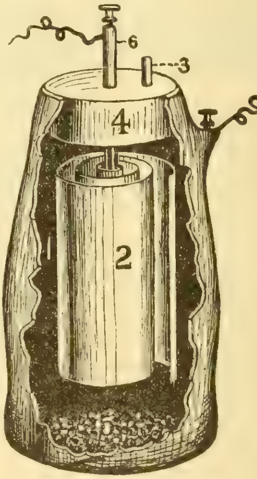
There, now, we have given the first and the last part of our bicycle-tour. We were afraid that, if we omitted to tell of the Detroit exposition, the matter might become a little too stale for our next issue.

NEW KIND OF BATTERY FOR IMBEDDING WIRES; DESCRIPTION BY RICHARD M. LEWIS.

SOME time ago we received a short letter and a drawing, descriptive of a new kind of battery for imbedding wires into foundation. As its form seemed to be simple, and cost of maintenance small, we wrote to the writer, asking for a descriptive article for GLEANINGS, at the same time furnishing a print of an engraving we had made. The following is his reply:

Mr. Root: —Your letter of the second inst. was duly received. The engraving of the battery is excellent. This battery is adapted either for open or closed circuit work, and will not require replenishing for several months, as there is no action except when the current is turned on. It has been used successfully in electro-plating and electric lighting on a small scale. The cell, or jar, being made of cast iron, serves as one of the plates of the battery. It is much heavier than the glass cell, which is compensated for by its non-liability to breakage.

Referring to the cut, I calculated to have the parts come in numerical order, but notice that No. 7 has been omitted, therefore I will apply No. 7 to the iron jar. No. 1 is a saturated solution of caustic potash, nearly filling the jar, and completely covering No. 2. No. 2 is the zinc element, formed of a plate bent spirally. No. 3 is a small tube of hard rubber, or a goose-quill would answer, for vent for accumulating gases. No. 4 is a cork, preferably of rubber. An ordinary cork will answer, but the acids are likely to eat it away in time. No. 7 is the iron jar (but not numbered in cut). No. 6 is a brass rod resting on the zinc element (No. 2), acting as a conductor. Parts not numbered are the lug shown on jar, with thumbscrew inserted, and is a conductor from the iron element. In the bottom of the jar is a thin layer of black oxide of copper, No. 5. I think this takes in all the parts.



NEW BATTERY FOR IMBEDDING FOUNDATION-WIRES.

Now in regard to this being a constant battery, as you term it. Of course, it will lose its strength to some extent with very hard usage; that is to say, by using it to its full capacity; but it will recuperate its strength by giving it a rest. In regard to the cost of maintenance as compared with the bichromate battery, I will say that, after once charging, it will not require replenishing for several months, with ordinary usage. A battery of this description, made on a large scale, say nine to ten inches in diameter, will yield a current of 8 amperes, while the smaller one, same as cut, yields two. The E. M. F. is one volt. It is not necessary to amalgamate the zincs in this class of battery.

It is my opinion, that this battery will answer the purpose of the bee-keeper for imbedding wires, and be much handier and more cleanly than the plunging battery, as it is not necessary to remove the zinc from the solution each time after using it, and it does not require replenishing as often, nor is it so liable to breakage. Unlike the bichromate battery, this can be shipped complete; in fact, it can be shipped set up ready for use, with the exception of saturating the potash. It may cost a trifle more in the start, which, as before stated, is compensated for by its longer life, cleanliness, and less liability to breakage.

By the way, have you ever tried using a spark coil? If you have any trouble in getting the wire hot enough, I think this would help you out. Had I not been so very busy for the past two or three months I should have tested the relative merits of the two batteries, and also of the spark coil in the wire-imbedding question. Our wires have all been imbedded with a putty-knife.

Omaha, Neb., Aug. 10. RICHARD M. LEWIS.

It is too late this season to use any battery for imbedding wires into foundation; but we hope to test this another year, and will then report on the result. One great trouble with the bichromate-potash batteries is, that the solution gives out—that is, it seems to lose its strength in a very short time, and must therefore be renewed. If there should be a call for such a battery, we can make the necessary arrangements to supply them.]

SPECIAL NOTICES.

DISCOUNTS FOR EARLY ORDERS.

We call the attention of our customers to the fact that, on such goods as you find on pages 10 to 30 of our price list that you buy for next season's use between now and Dec. 1, a discount of 5 per cent may be deducted. This applies to goods of our manufacture only, which are found between pages mentioned.

DAMAGED BOOKS BELOW COST.

Owing to a leak in the water-tank in the tower above our vault, the walls became damp, and a few copies of our paper-bound edition of the Christian's Secret of a Happy Life are a little soiled by mold. We offer them by mail postpaid for 15 cts. each; or by express or freight with other goods, singly or in quantities, at 10 cts. each; regular price, 25 cts.

LAWN-MOWERS.

A month ago we offered lawn-mowers at reduced prices, to work down our stock rather than carry it over to another season. A good many have taken advantage of the offer; and one size, the 18-inch Globe, are all gone. We still have plenty of the 10 and 12 inch, and two each of 14 and 16 inch. The prices we offered then are as follows:

10-inch Young America	$3.00
12-inch " "	3.50
10-inch Globe	3.75
12-inch "	4.00
14-inch "	4.30
16-inch "	4.75

Above prices are very nearly cost, and available as long as the stock lasts.

STANLEY HONEY-EXTRACTORS.

Last spring we acquired the right to make these machines, and at the same time we bought what stock Mr. Newcomb had on hand. We have offered these at 25 per cent off the regular prices, in the hope of working them off to give us a chance to make some ourselves. Quite a few have been sold, but we still have five or six two-frame machines, and ten or twelve four-frame, with crank directly on the shaft, and no gear. The prices at which these have sold was $12.00 for the two-frame and $20.00 for the four-frame; $8.00 extra for the horizontal gear. We are still desirous of closing out this stock; and as a further inducement we will sell the two-frame for $8.00, and the four-frame for $12.00—almost half price. We will put on our bevel gear, 3 to 1, for $3.00 each extra. If anybody is in want of one of these machines he will never have a better chance to buy one cheap. We bought them low, and can afford to sell them as above rather than to keep them over till another season. Remember, this price lasts only as long as the old stock lasts; for when we have to make them new we must charge full list price.

SQUARE CANS FOR EXTRACTED HONEY.

I believe bee-keepers generally are learning more and more the advantage of putting up extracted honey for shipment in these square cans. Honey in square cans handles much more satisfactorily than in any other package, according to our experience. We are prepared to furnish you the square cans, f. o. b. at Conneaut, Ohio, St. Louis, Mo., or from here, at the following prices:

Two five gal. cans, boxed with 1½-inch screws, each, 75c; 10, $7.00; 100, $65.00.

Two five-gal. cans, boxed with 1½ and 4 in. screws, each, 85c; 10, $8.00; 100, $75.00.

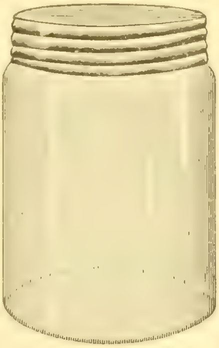
One five-gal. can, boxed with 1½-inch screws, each, 45c; 10, $4.20; 100, $40.00.

One five-gal. can, boxed with 1½ and 4 inch screws, each, 50c; 10, $4.70; 100, $45.00.

Ten one-gal. cans, boxed with screws, each, $1.50; 10, $14.00; 100, $130.00.

One hundred one-gal. cans in one box, $12.00.

NEW HONEY-JARS.



We have added to our stock of glass jars for extracted honey the one shown adjoining. It is straight up and down, with a tin screw top, with opening in the top nearly the full size of jar, making it easy to take out candied honey. The top edge is ground so that they can be sealed with a rubber band if desired. There are six sizes made, but we keep only two—No. 200, holding 1 lb. of honey, as shown, and No. 500, same diameter, twice as long, holding 2 lbs. Prices, without rubber rings, will be as follows: No. 200, holding 1-lb., 7c each; 60c for 10; $7.00 per bbl. of 12 doz. No. 500, holding 2 lbs., 12c each; $1.00 for 10; $6.50 per bbl. of 7 doz.

PRICE LIST OF JONES LITHOGRAPH LABELS.

25 per cent reduction for 60 days from the following:

Name of Label.	Size in Inches.	Price, 100	Price, 1000	Postage 100	Postage 1000	Print'g Add's 1000	Print'g Add's 500	Print'g Add's 250	Print'g Add's 100
5 lb. Jones Lithogr'h.	6¼ x 14	1 00	9 50	.12	1.20	1 00	75	50	30
2½ ditto	3½ x 14	.60	5 50	6	52	1.00	75	50	30
1 ditto light.	4½ x 9½	.50	4 00	4	35	1 00	75	50	30
1 ditto darker.	4½ x 9½	50	4 00	4	35	1 00	75	50	30
½ ditto	2¾ x 8¼	25	2.00	3	28	90	75	50	30
¼ ditto.	2 x 7½	25	2 00	3	.25	90	75	50	30
⅛ ditto	1½ x 5½	15	1 00	.2	18	90	75	50	30
E ditto.	2½ x 16	50	4 50	4	36				
F ditto.	2½ x 16	50	4 50	4	36				
G ditto	2¼ x 13½	55	5 00	5	.42	1.00	75	50	30
H ditto	2 x 13½	55	5 00	.5	.42				
I ditto	3 x 14	60	5.50	6	52	1.00	75	50	30
J ditto	2¼ x 16	60	5.50	.6	52				
Abbott Oval Lith'ph.	2½ x 2½	30	2.00						

In order to work down our stock of these labels we offer a reduction of 25 per cent from above prices for the next 60 days, or as long as stock lasts. We have the largest stock of the 1-lb. light and dark, and they are a very good size for tin pails of almost any size.

Those of you who have never seen these labels can form little idea how handsome they are; and that you may see them without much expense we will put up a sample package of 1 of each kind, with one dozen of the last named, and mail postpaid for *ten cents*. Eight of the above may be divided into 2 and 3 labels each, so that you can get a small lot (over 30) of handsome lithograph labels, no two alike, for only ten cents. These sample packages would be very good for labeling a small fair exhibit. They would at least add variety. We can not, of course, print your name and address on the sample package or any number less than 100, and those opposite which we give no price for printing, have no blank place for such printing, and hence can not be printed. All the above are ungummed. You can not get lithograph or many-colored labels on gummed paper.

ONE-PIECE SECTIONS.

We don't propose to be behind in the race to furnish the best section honey-boxes at the lowest cost. We are at work on machines by which we hope to not only reduce the cost of manufacturing but also to make them all exactly uniform. We have been studying on this for some time, and will reserve further mention till we attain its full realization. In the meantime we have toward two millions of sections of different widths and grades on hand; and in order to work down this stock we will make special low prices on application. The most of these sections are unsurpassed in color and workmanship. We have the largest stock of 7-to-foot and 1¾-inch, on which we will make extra inducements. We have also a large supply of $1\frac{15}{16}$ and 1⅞ cream, which we will sell at or below cost. Write for terms before placing any contract.

MARKET-GARDENING FOR THE MIDDLE OF SEPTEMBER.

Now is the time to put out spinach for fall, winter, and spring use. We want to have it get just as large as possible before winter sets in, and not shoot up to seed. As we do not know what the weather will be, I would recommend two sowings—say one the 15th and another ten or fifteen days later. If you expect to make any money on spinach, you want your ground exceedingly rich, and rich away down deep; then you will get leaves as large as small cabbage-leaves. In this way we get spinach that sold for 15 cts per lb. two years ago, in the month of November. This is also the time to sow cabbage-seed to get plants for wintering over in cold-frames; but for the reason given above I think you had better also make two sowings of the cabbage-seed. And this is just the time, also, for planting winter onions, if you have ground just cleared off that can be spared for them.

We are pleased to tell our friends that we have finally obtained the American Pearl onion-*sets*—at least, we have just received one barrel of them. Price 25 cts. per quart; $1.75 per peck; $6.00 per bushel. If wanted by mail, add 10 cts. per quart extra. The *seed* is not yet received, but I do not believe it will pay anybody to sow the *seed* in the fall.

I believe there is no Jersey Wakefield cabbage-plant in the world that surpasses our strain, raised by H. A. March. Price 20 cts. per oz.; $2.50 per lb. If wanted by mail, add at the rate of 9 cts. per lb. for postage. We are testing all the different varieties of spinach, and at present we give the preference to the Bloomsdale Extra Curled. Oz., 5 cts.; lb., 25 cts.; 5 lbs., $1.00. If wanted by mail, add as above for postage. If you have a market for lettuce during Thanksgiving and Christmas, now is the time to be working at it. You will have to have glass, however, to grow it in the open ground fit for Christmas. Nothing that I know of equals the Grand Rapids for this purpose. Price, oz., 20 cts.; lb., $2.25. Perhaps I may say we have tried planting sets of other kinds of onions, in September, but have had no success worth mentioning with any thing but the American Pearl. Of course, the Egyptian winter onion-sets always succeed everywhere. Of these latter we have quite a stock on hand, on which we will make the following low prices for immediate orders: 10 cts. per quart; 65 cts. per peck; $2. 5 per bushel. If wanted by mail, add 10 cts. per quart for postage.

Strawberry-plants, we are sending out both by mail and express every day. We judge from this that our friends succeed as we do in planting them out in September Have your ground rich; fill the hole, where you put the plant, with water, at the time of planting, then pull some dry earth around the plant to prevent the soil from baking, and we think you will have no trouble in getting them to grow so as to stand the winter. For prices, see page 632 of our issue for August 15.

PURE ITALIAN QUEENS.

Untested, 70c each; 3 for $1.75; 6 or more, 50c each. Tested queens, $1.00 each. 14tfdb
D. G. EDMISTON, Adrian, Lenawee Co., Mich.

SAVE MONEY.—Send to J. P. H. Brown, Augusta, Georgia, for his price list of supplies. Hives and foundation at wholesale rates. 4tfdb

QUEENS! A few fine queens of 5-banded variety, 75 cents each; three, $2.00.
J. F. MICHAEL, German, Darke Co., Ohio.

ALL who wish my Restrictor books should address C. W. Dayton, Berthoud, Col., and not Clinton, Wis. The first edition is all gone, but I will print another edition as soon as the honey harvest is over, and mail one to all appplicants.
C. W. DAYTON, Berthoud, Larimer Co., Colo.
In writing advertisers please mention this paper.

800 FERRETS, and a fine lot of **Scotch Collie Pups** for sale. Price list free. Address **N. A. KNAPP, Rochester, Lorain Co., Ohio.** 18tfdb

Harvest Excursions

—WILL BE RUN ON—

Sept. 27th and Oct. 25th,

—TO THE—

Pecos Valley

The Fruit Belt of New Mexico.

Tickets may be bought at any important railway station, in the Northern or Eastern States, to

EDDY, NEW MEXICO,

and return—**good twenty days**—at

One Fare for the Round Trip.

Don't miss this opportunity to see the **richest** and **most fertile valley,** and the most complete and elaborate system of Irrigating Canals in the United States. For particulars, address

G. O. SHIELDS, Eddy, New Mexico

Please mention this paper.

Black and Hybrid Queens For Sale.

For the benefit of friends who have black or hybrid queens which they wish to dispose of, we will insert notices free of charge, as below. We do this because there is hardly value enough in these queens to pay for buying them up and keeping them in stock; and yet it is oftentimes quite an accommodation to those who can not afford higher-priced ones.

I have 10 hybrid queens 1 year old, wings clipped, good prolific ones, 25 cts. each, or 10 for $2.00. A few mismated Italians, 30 cts. each, or four for $1.00. All good prolific queens. Safe arrival guaranteed.
JOSEPH BRINICH, Denison, Westm'd Co., Pa.

Young hybrids and mismated Italians at 15 and 25 cts. each. C. G. FENN, Washington, Conn.

I have some hybrid queens of this year's raising for sale, at 25 cts. each. 18-19d
J. H. JOHNSON, Middaghs, Northam'n Co., Pa.

Hybrid and mismated Italian queens, 20 cts. each.
W. W. KULP, Pottstown, Pa.

We are now requeening one of our out-apiaries and will have a few mismated queens to sell at 25c each. LEININGER BROS., Fort Jennings, O.

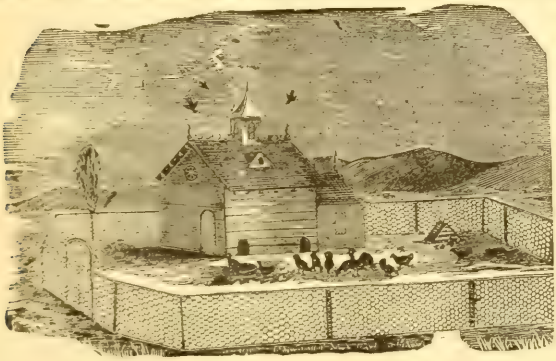
A few black and hybrid queens at 15c.
ROOT BROS., Reeds' Corners, N. Y.

5 Per Cent Discount On All Goods

Listed from pages 10 to 30 of our price list, which are ordered between now and Dec. 1st, for next season's use. This does not apply to goods on other pages, except those mentioned. **A special reduction of 20 cents on each two-story chaff hive,** ordered for a limited time. The quantity and early-order discounts to apply also. Special prices quoted on sections in lots of 2000 and upward. Name the quantity and size when you write. We guarantee as good a quality for the price as you can obtain anywhere. Dealers should not fail to write us before making contracts for another season's supply. We offer special inducements.

A. I. ROOT, Medina, Ohio.

Galvanized-Wire Poultry-Netting and Fencing. The Best Made at the Lowest Price.



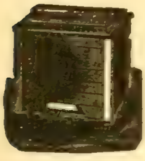
We handle only the G. & B. brand, which we consider the best made, as it is made of wire fully up to gauge, and has three-strand twisted-wire selvage, while other makes have only two. We have secured a carload from the factory, at a special low price, which we are able to sell lower than you can buy it anywhere else of equal quality, and lower than we have ever sold it before, though we have been getting more for it the past two years than we did in 1890. This carload that we have purchased is all 2-inch No. 19 netting, the size generally used for poultry. It was made nearly a year ago, and has lost some of the bright luster of fresh new goods; and it was for this reason alone that we bought it lower and are able to sell it cheaper. It is guaranteed equal in every respect to fresh new goods of the best quality, except in luster, which practically is of no account, because the brightest netting becomes dull in a few weeks after being put up. We have in stock all widths from 12 inches up to 60, which we can furnish at the following prices. All shipments must be made from here. We can not ship from New York or Chicago at these prices; but as we are able to secure through rates to almost all points from here, the freight will be little if any more than if shipped from either city. ¾-inch staples for below, 20c per lb.; 5 lbs. or over, 16c per lb.

Rolls 150 ft. long.	1 roll.	5 rolls.	10 rolls.	Rolls 150 ft. long.	1 roll.	5 rolls.	10 rolls.
2-in. No. 19, 12 inches wide,	$1 00	$ 4 50	$ 8 75	2-in. No. 19, 36 inches wide,	$2 90	$13 50	$26 00
" " 18 "	1 50	5 75	12 00	" " 42 "	3 40	16 00	31 00
" " 24 "	2 00	9 00	17 50	" " 48 "	3 75	17 50	34 00
" " 30 "	2 50	12 00	23 00	" " 60 "	4 75	23 00	44 00

The lot includes over 600 rolls, most of which are 48 inches wide, the usual size used. This price will last only as long as the stock lasts. You will do well, therefore to order early. The above prices are less than the wholesale quotations to-day on netting not one whit better, if as good. If you want other sizes, or shipment from New York or Chicago, write for our special 20-page netting catalogue, mailed on application.

A. I. ROOT, MEDINA, OHIO.

Reduction in Price of Chaff Hives.



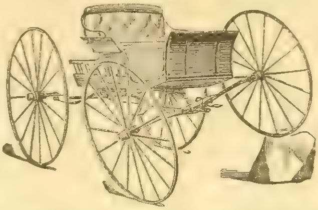
The hive shown in adjoining cut has been a most successful one with a great many bee-keepers through Ohio, Indiana Illinois, Iowa, New York, Pennsylvania, and even as far north as Michigan, Wisconsin, and Minnesota. We have wintered bees successfully in them for the past 12 winters, and still use them because they are still good. While we would rather handle bees in the new Dovetailed chaff hives, and think they will winter as safely in them, yet the old chaff hives are too good to discard, and there are many bee-keepers who still prefer them to any hive made. As we have an overstock of them, we propose, in order to reduce this stock, to make a reduction of 20 cts. on a hive for a limited time only. A box of 5 hives in the flat, without furniture, is listed at $7.00; with above reduction, the price will be $6.00. The same quantity discounts will apply as well as the early-order discount of 5 per cent. From the prices of complete hives, page 24 of our catalogue, deduct 20 cts. on each hive. As soon as our stock is reduced enough to warrant, this reduction will be withdrawn, so we advise you to take early advantage of it if in want of any of these hives.

A. I. ROOT, Medina, Ohio.

Bishop's Oscillating Road-Wagon. Pat'd March 24, 1891.

Most Durable and Easiest Riding Wagon on the Market.

An oscillating fifth wheel permits the wheels to pass over an obstruction 15 inches high without changing the level of the body.



Body hangs 3 inches lower than on any other gear.

Prices, $40, $45, & $50.

With white chapel body and top, $10 and $20 extra.

A. B. BISHOP,
89 Euclid Ave.,
Cleveland, O.

Write for catalogue. Agents wanted. 16tfdb

Foundation Reduced 3 cts. Per Pound.

SECTIONS I sold at $3.00 now selling at $2.60. Bingham Smokers at cost. Send for Free Price List of every thing needed in the apiary. 6tfdb **M. H. HUNT, Bell Branch, Mich.**

DOVETAILED HIVES, SIMPLICITY HIVES,

SECTIONS, EXTRACTORS, ETC.
A FULL LINE OF
BEE-KEEPERS' SUPPLIES.
60-PAGE CATALOGUE. 1tfdb

J. M. JENKINS, WETUMPKA, ALABAMA.

☞In responding to this advertisement mention GLEANINGS.

ROOT'S GOODS FOR THE EAST.

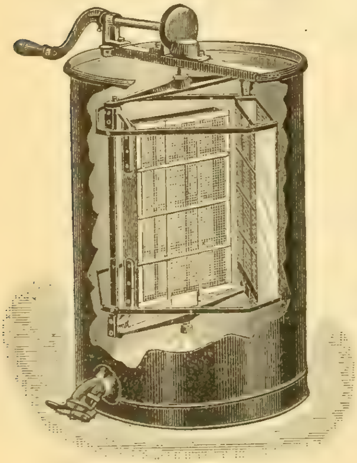
Bee-Keepers of the East should

Bear In Mind that we have established at Syracuse an **Eastern Branch** where our Bee-keepers' Supplies are kept for sale, and prompt shipment. You can save time and freight by ordering from our Eastern Branch. We have engaged Mr. F. A. Salisbury to take charge of this business, and he will treat you well. He will be pleased to send you a list of goods kept in stock.

Address all orders,

EASTERN BRANCH, F. A. SALISBURY, Agent, Syracuse, N. Y.

A Grand Success.



New Cowan Reversible Honey-Extractor.

May be Reversed without Stopping the Machine.

Strong, well made in every respect, light, and of convenient size. The can is but little larger than that of the Novice. The gear is beveled, and covered by an iron shield, and the crank outside the can. Frank McNay, of Mauston, Wis., a bee-keeper who produces tons and tons of extracted honey, says of it:

> After carefully examining and trying the Cowan extractor, I have failed to find a weak part, and I do not hesitate to say that it is the best extractor made, both in regard to convenience and durability, and I shall replace all of my five machines with the Cowan as soon as possible.

It is indorsed also by J. F. McIntyre, an extensive extracted honey producer in California; by W. Z. Hutchinson, Dr. C. C. Miller, and others

Price all Complete, Japanned and Lettered, for L. Frame, $10.

A. I. ROOT, MEDINA, OHIO.

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Bug Stinging 739
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Butterflies 734
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CONVENTION NOTICES.

The fall meeting of the Connecticut Bee-keepers' Association will be held at the Capitol, in Hartford, on Thurs., Nov. 3.
Waterbury, Ct. Mrs. W. E. Riley, Sec.

The Southern California Bee-keepers' Association will meet in Los Angeles, at the Chamber of Commerce, on Thursday, Oct. 20, 9 A.M. G. W. Brodbeck, Sec., Los Angeles.

The Knox County, Indiana, fair will be held at Vincennes, Oct. 10 to 15. All bee-keepers and supply-dealers are requested to make exhibits. Premiums amounting to $200 are offered. Parties interested will address Frank Vawter, Vincennes, Ind.

A convention of bee-keepers will be held in Brick and Stone Masons' Hall, Salt Lake City, at 10 A.M., Oct. 7. All interested are invited. J. C. Swaner, Sec'y.

The Allegany County Bee-keepers' Association was organized at our county fair, Sept. 8th, with an initial membership of 23, all in good standing. Our officers for the coming year are, H. C. Farnum, President; W. M. Barnum, Vice-president; H. L. Dwight, Secretary; H. Spring, Treasurer.
Belmont, N. Y., Sept. 20. W. M. Barnum.

The 13th annual convention of the Northeastern Ohio, Northern Pennsylvania, and Western New York Bee-keepers' Association will convene in the parlors of the Eureka Mineral Springs Hotel, Saegertown, Pa., Oct. 19th, 1892, at 10 A.M., for a two days' session. The program will consist of practical topics relating to apiculture, discussed by practical bee-keepers. Saegertown is situated six miles east of Meadville, on the New York, Pennsylvania & Ohio Railroad. Reduced rates have been secured to those attending the convention. Saegertown is situated on the banks of a beautiful stream of water, and is one of the finest summer resorts in the country. A steamer is afloat on the river, and will be at the disposal of all wishing it. It is hoped that there will be a large attendance. Ladies are especially invited. Programs will be sent to members, and to others who request it of the secretary. M. E. Mason, President,
G. Spitler, Secretary, Andover, O.
Mosiertown, Crawford Co., Pa.

HONEY COLUMN.

CITY MARKETS.

New York.—*Honey.*—Since Sept. 3 we received 3223 crates of comb honey. Demand is good and market firm at following prices. Fancy white, 1 lb. sections, 15@17c; 2 lbs., 13@14; fair white, 1 lb., 13@14; 2 lbs., 12c; buckwheat, 10@12, according to quality and style of package. Extracted, basswood, white clover and orange bloom, 7½@8c; Southern, 65@75c per gallon, as to quality. No demand for extracted buckwheat. The crop in California is not a failure as first reported. Since July 8th we purchased twelve carloads of extracted California honey. **Hildreth Bros. & Segelken,**
Sept. 24. 28 & 30 West Broadway, New York.

New York.—*Honey.*—Demand for honey increasing, and quote prices as follows: 1 lb. fancy comb honey, 16@17; 2 lb., 12@13; 1 lb., fair, 12@14; 2 lb., 11@12; 1 lb., buckwheat, 10@11; 2 lb., 9@10. Extracted honey, clover and basswood, 8c; buckwheat, 6; Southern, 70@75c per gal. *Beeswax*, 26@27.
Sept. 21. **Chas. Israel & Bros.,**
110 Hudson St., New York.

Albany.—*Honey.*—Our market is active now and good prices being realized. We have sold one thousand cases of honey so far this season and six tons of extracted. Comb honey, white clover, 14@16; mixed, 13@14; buckwheat, 12@13. Extracted, white, 8; amber, 7@8; dark, 6@6½. **H. R. Wright,**
Sept. 26. 326, 328, 330 Broadway, Albany, N. Y.

New York.—*Honey.*—We are paying for white comb honey, fancy, 14@15c; fair, 12@13; buckwheat, 10@10½. *Beeswax*, 26@26½.
Thurber-Whyland Co.,
Sept. 21. New York.

Albany.—*Honey.*—We have received up to date 1096 cases of comb and 48 packages of extracted honey. The clover is only fair quality, and selling off freely at 15c and the buckwheat at 11@12. Fancy white 1-lb. sections will bring 16@18. Extracted, 6½@8. The display of honey made by us, at the New York and New England Fair, just closed here, for the benefit of our consignors, attracted much attention. **Chas. McCulloch & Co.,**
Sept. 24. 393, 395, 397 Broadway, Albany, N. Y.

Chicago.—*Honey.*—Fancy white comb honey selling at 17@18c; second grade, 15@16. We guarantee to sell no extracted honey less than 7c and from that to 8½. *Beeswax*, 26. All the above scarce on our market, and in good demand. We advise prompt shipments. **S. T. Fish & Co.,**
Sept. 21. 189 So. Water St., Chicago, Ill.

Chicago.—*Honey.*—The demand for comb honey is very good. We obtain 16c for white comb; a fancy lot sold at 17c. Dark, 12@14. Extracted, 6@8. *Beeswax*, 23@25. All honey and beeswax should be sent by freight. **R. A. Burnett,**
Sept. 21. 161 So. Water St., Chicago, Ill

Kansas City.—*Honey.*—There is a good demand for honey, but a very light supply. Price of 1 lb. comb, white, 17c. Extracted, 6@7½. The new crop of honey is arriving, and is very fine. *Beeswax*, 22@25. **Hamblin & Bearss,**
Sept. 21. 514 Walnut St., Kansas City, Mo.

Kansas City.—*Honey.*—The receipts of both comb and extracted are light; demand good. We quote No. 1 white 1 lb. comb, 15@16; No. 2, 1 lb., 13@14; No. 1 amber, 1 lb., 14@15; No. 2, 1 lb., 10@12. Extracted, white, 7@7½; amber, 5@6. *Beeswax*, 20@22.
Sept. 22. **Clemons-Mason Com. Co.,**
Kansas City, Mo.

Cincinnati.—*Honey.*—The demand for extracted honey is very good, and in excess of arrivals. It 5@8c on arrival. A great deal of comb honey could be sold if there was a supply. Small arrivals are disposed of as they come in at 12@16c for best white. *Beeswax* is in good supply, and demand is fair at 20@25c on arrival for good to choice yellow.
Chas. F. Muth & Son,
Sept. 20. Cincinnati, O.

St. Louis.—*Honey.*—Demand for extracted continues good, at 5½@5¾. Demand for comb quiet. We quote 10@16. *Beeswax*, prime, 25.
Sept. 21. **D. G. Tutt Gro. Co.,**
St. Louis, Mo.

Boston.—*Honey.*—The supply of honey is very light, and we think that prices will rule high. We are selling best one-pound white honey at 18@19c. Extracted, 7@9. No beeswax on hand.
Blake & Ripley,
Sept. 21. Boston, Mass.

Buffalo.—*Honey.*—We can quote actual sales to-day of fancy No. 1 clover honey mostly, 15@16c; No. 2, 12@14. Still most excellent indications for favorable results. We advise liberal shipments. We advance liberally, and need many tons for our winter trade. **Batterson & Co.,**
Sept. 20. 167, 169 Scott St., Buffalo, N. Y.

Detroit.—*Honey.*—We sold our crop of comb honey yesterday for 15c, and the demand is good, with no honey in commission houses. Extracted, 8c. *Beeswax*, 24@25. **M. H. Hunt,**
Sept. 23. Bell Branch, Mich.

For Sale.—2000 lbs. comb and 3000 lbs. extracted honey. The former in 1-lb. sections, 24-lb. cases. The latter in 60-lb. square cans. The honey is fine quality. Sample of extracted sent on application.
Ezra Baer, Dixon, Ill.

Wanted.—50,000 lbs. of choice white comb honey.
Address **Byron Walker,**
17tfdb Evart, Mich., or Wyalusing, Wis.

S. T. FISH & CO.,

Commission Merchants.

Green, Dried, and Evaporated Fruits, Honey, Butter, Cheese, Eggs, Potatoes, Poultry, and Grain.

189 South Water St., Chicago, Ill.

We make a specialty of our **HONEY DEPARTMENT**, and sell our receipts throughout the United States. We have export connections whom we supply when prices reach such point as to permit foreign markets placing orders with us. We are opposed to adulteration in any form, and will positively not sell anything but pure honey. Send your adulterated honey elsewhere, but your pure honey **WE WANT**. We make liberal advances on consignments, and accept goods on a limit. **What Have You to Fear** by entrusting goods to our care? Nothing. We are responsible, and refer you to any bank or to GLEANINGS. To those who wish to sell at home we beg to advise we are buyers. We ask your correspondence, which will receive immediate response.

Respectfully, S. T. FISH & Co.

Cut this out and place in your honey-house. Mention GLEANINGS.

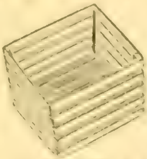
Galvanized-Wire Poultry-Netting and Fencing. The Best Made at the Lowest Price.

We handle only the G. & B. brand, which we consider the best made, as it is made of wire fully up to gauge, and has three-strand twisted-wire selvage, while other makes have only two. We have secured a carload from the factory, at a special low price, which we are able to sell lower than you can buy it anywhere else of equal quality, and lower than we have ever sold it before, though we have been getting more for it the past two years than we did in 1890. This carload that we have purchased is all 2-inch No. 19 netting, the size generally used for poultry. It was made nearly a year ago, and has lost some of the bright luster of fresh new goods; and it was for this reason alone that we bought it lower and are able to sell it cheaper. It is guaranteed equal in every respect to fresh new goods of the best quality, except in luster, which practically is of no account, because the brightest netting becomes dull in a few weeks after being put up. We have in stock all widths from 12 inches up to 60, which we can furnish at the following prices. All shipments must be made from here. We can not ship from New York or Chicago at these prices; but as we are able to secure through rates to almost all points from here, the freight will be little if any more than if shipped from either city. ¾-inch staples for below, 20c per lb.; 5 lbs. or over, 16c per lb.

Rolls 150 ft. long.	1 roll.	5 rolls.	10 rolls.	Rolls 150 ft. long.	1 roll.	5 rolls.	10 rolls.
2-in. No. 19, 12 inches wide,	$1 00	$ 4 50	$ 8 75	2-in. No. 19, 36 inches wide,	$2 90	$13 50	$26 00
" " 18 "	1 50	5 75	12 00	" " 42 "	3 40	16 00	31 00
" " 24 "	2 00	9 00	17 50	" " 48 "	3 75	17 50	34 00
" " 30 "	2 50	12 00	23 00	" " 60 "	4 75	23 00	44 00

The lot includes over 600 rolls, most of which are 48 inches wide, the usual size used. This price will last only as long as the stock lasts. You will do well, therefore to order early. The above prices are less than the wholesale quotations to-day on netting not one whit better, if as good. If you want other sizes, or shipment from New York or Chicago, write for our special 20-page netting catalogue, mailed on application.

A. I. ROOT, MEDINA, OHIO.



Bushel Boxes.

We make and sell them DIRT CHEAP, because they are made of the refuse pieces from section blocks—pieces that are good and sound, but are slightly discolored. **PRICE, CRATE OF 15 (13 IN THE FLAT AND 2 NAILED UP), $1.50; 10 CRATES OF 15 EACH, 5 PER CENT OFF.** These Bushel Boxes save time in loading and unloading, and bin room in the cellar. Send for pamphlet on "**HANDLING FARM PRODUCE,**" free.

A. I. Root, Medina, Ohio.

DOVETAILED HIVES, SIMPLICITY HIVES,

SECTIONS, EXTRACTORS, ETC.
A FULL LINE OF
BEE-KEEPERS' SUPPLIES.
60-PAGE CATALOGUE. 1tfdb

J. M. JENKINS, WETUMPKA, ALABAMA.

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ROOT'S GOODS FOR THE EAST.

Bee-Keepers of the East should

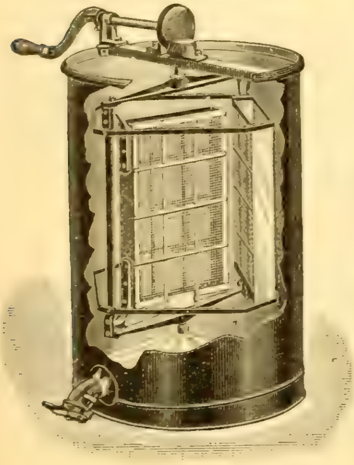
Bear In Mind that we have established at Syracuse an **Eastern Branch**

where our Bee-keepers' Supplies are kept for sale, and prompt shipment. You can save time and freight by ordering from our Eastern Branch. We have engaged Mr. F. A. Salisbury to take charge of this business, and he will treat you well. He will be pleased to send you a list of goods kept in stock.

Address all orders,

EASTERN BRANCH, F. A. SALISBURY, Agent, Syracuse, N. Y.

A Grand Success.



New Cowan Reversible Honey-Extractor.

May be Reversed without Stopping the Machine.

Strong, well made in every respect, light, and of convenient size. The can is but little larger than that of the Novice. The gear is beveled, and covered by an iron shield, and the crank outside the can. Frank McNay, of Mauston, Wis., a bee-keeper who produces tons and tons of extracted honey, says of it:

> After carefully examining and trying the Cowan extractor, I have failed to find a weak part, and I do not hesitate to say that it is the best extractor made, both in regard to convenience and durability, and I shall replace all of my five machines with the Cowan as soon as possible.

It is indorsed also by J. F. McIntyre, an extensive extracted-honey producer in California; by W. Z. Hutchinson, Dr. C. C. Miller, Dr. A. B. Mason, and others

Price all Complete, Japanned and Lettered, for L. Frame, $10.

A. I. ROOT, MEDINA, OHIO.

The Bee-Keepers' REVIEW For 1892 and a Fine, Young, Laying Italian **QUEEN** for $1.50. The Review Alone, $1.00. The Queen Alone, 75 Cts. For $1.75, the Review, the Queen, and the 50 ct. Book, "Advanced Bee Culture," will be sent. W. Z. Hutchinson, Flint, Mich.

P. S.—If not acquainted with the REVIEW, send ten cents for three late but different issues.

Best on Earth.

More than one hundred thousand Bingham & Hetherington Honey-knives and Bee-smokers in daily use. Illustrations sent free.

Bingham & Hetherington,
Abronia, Mich. 7tfdb

BEE SUPPLIES RETAIL —AND— WHOLESALE.

Everything used in the **Apiary.** Greatest variety and **largest** stock in the West. New catalog, **54** illustrated pages, free to bee-keepers. **E. KRETCHMER, RED OAK, IOWA.**
Please mention this paper. 2tfdb

WESTERN BEE-KEEPERS' SUPPLY HOUSE.

ROOT'S GOODS can be had at Des Moines, Iowa, at ROOT'S PRICES The largest supply business in the West. Established 1885. Dovetailed Hives, Sections, Foundation, Extractors, Smokers, Veils, Crates, Feeders, Clover Seeds, etc. Imported Italian Queens. Queens and Bees. Sample copy of our Bee Journal, "THE WESTERN BEE KEEPER," and LATEST CATALOGUE mailed FREE to Bee-keepers.

JOSEPH NYSEWANDER,
Des Moines, Iowa.

BEES FOR BUSINESS.

Warranted queens from my choice strain of yellow hustlers, bred for working qualities and gentleness as well as beauty, 75 cts. each by return mail. Tested, $1.25. A few mismated queens, 25 cts. each.
18tfdb **J. A. GREEN, Dayton, Illinois.**

WANTED.—Reliable parties to distribute and collect for *LADIES' TOILET - CASES.* Well worth $1.00 in any family. Will send sample and full instructions by mail for 35 cts. in stamps, returnable if not satisfactory. Address J. C. FRISBEE, Gen'l Agt., 172 Maple St., Denver, Col.
Reference, A. I. Root, Medina, Ohio. 8-24db

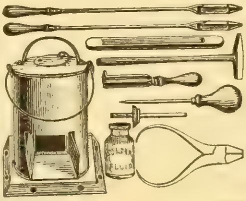
Golden Honey Queens.

Queens in Sept., untested, 65c; half doz., $3.00; tested, $1.00; one year old, 85c; select tested, $2.00; extra select, $4.00; the very best, $7.00; imported, $4.00.
LEININGER BROS., Ft. Jennings, Ohio.

The "Progressive Bee-Keeper."

A practical monthly journal for beginners. Will be sent from Sept., '92, to Dec., '93, for 50c, to all new subscribers. Sample copy free. Address 19tf
E. F. QUIGLEY, Unionville, Mo.

GOOD apiary and fixtures for sale cheap at Pattonsburg, Mo. Address
G. F. TUCKER, Yellville, Ark.



OATMAN'S SOLDERING AND REPAIR KIT

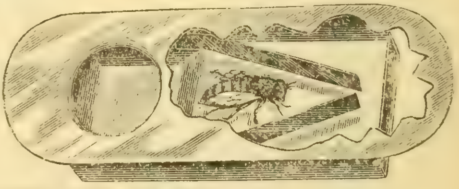
Consists of fire-pot, soldering-irons, solder, and soldering-fluid, with tools compl'te as shown in cut, with directions for soldering different metals, and how to keep your soldering-irons in shape. Whole kit, boxed, 12 lbs. Shipped on receipt of $2.00. Agents wanted.

O. & L. OATMAN,
8-7db **Medina, Ohio.**

Porter's Spring Bee-Escape.

We guarantee it to be the best escape known, and far superior to all others. If, on trial of from one to a dozen, you do not find them so, or if they do not prove satisfactory in every way, return them by mail within 90 days after receipt, and we will refund your money.

PRICES:—Each, by mail, postpaid, with full directions, 20c; per dozen, $2.25. Send for circular and testimonials. Supply dealers, send for wholesale prices.
10tfdb *R. & E. C. PORTER, LEWISTOWN, ILL.*



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The Oldest, Largest, Best and Only Weekly Bee-Paper in America. Sample Copy Free.
—: 32 pages—$1.00 a Year :—

The American Bee Journal

Address **GEORGE W. YORK & CO.,**
199 Randolph St., CHICAGO, ILLS.

TO NEW SUBSCRIBERS—FROM NOW TO JAN. 1, 1893, 20 Cents; TO JAN. 1, 1894, $1.00.

Gleanings in Bee Culture
A Journal devoted to Bees and Honey and Home Interests.
Illustrated Semi-Monthly
Published by A. I. Root. $1.00 per Year. Medina Ohio

Vol. XX. OCT. 1, 1892. No. 19.

STRAY STRAWS

FROM DR. C. C. MILLER.

For entrance feeding, W. D. Soper's feeder is a simple and nice arrangement. Quite bright.

Friend Root, if you and your family will make a trip to Marengo we'll find stabling for the bicycles.

Prices of honey are slowly climbing—a sure indication that the markets are not flooded with that commodity.

If glucose can be detected for a certainty in adulterated honey, sadness will take hold of the hearts of the adulterators.

The fight is on! and it's to the death. Pitch in, Prof. Cook, and keep a-pitchin'-in till adulteration gives its last kick.

"Vindictive little sinners" is what Emma calls our Punics, or, rather, half-breed Punics. But they seem to be making good work.

It will be cheaper and better to enlarge the field of the good old Bee-keepers' Union than to get up any new machinery to fight adulteration.

One cent a glass, *A. B. J.* says, will get you, at the World's Fair, mineral water piped directly from the famous Waukesha, Wis., springs.

Dog-fights are hardly the proper thing for an editor, Ernest; but if you must indulge your taste in that direction I advise you to get knickerbockers of sheet iron.

Your Honey Column, friend Root, is not gotten up this year in as interesting a manner as usual. Somehow you always fail to make it very spicy, years that I have no crop.

Get golden-yellow bees as much as you like, Bro. Root, to suit the popular demand; but be sure to furnish me a queen of the dark, leathery sort every year or so. I can bleach them out faster than I like.

If keeping expenses down is the way to get rich, a few seasons like the present will make me a millionaire. I've no shipping-cases to buy, and no sections to get ready for next season. Oh, yes! *I'm* keeping down expenses.

Foundation with complete cells is something over which some of the foreign bee-journals are quite enthusiastic. Bees accept it and use it quite readily; but so far, queens will not lay in it. They are sanguine that it may come into general and profitable use.

Apis dorsata will not be brought to this country by the government, W. C. Frazier thinks, as soon as it might be by private enterprise, and asks in *A. B. J.* how many will take shares of $20 each in a stock company with $5000 capital in order to get the big bees here.

That "silver lining" to the cloud has at last come to me in the shape of an unusual fall flow, and hope—that eternal springer—softly whispers in my ear, "Next year may give you a bright sky clear through, with no clouds to be lined."

This summer, for the first time in my life I saw a laying worker which I recognized as one—saw it in the act. There was nothing unusual in its appearance—just a nice, respectable-looking worker that you would never dream of being engaged in such disreputable business.

Just to think that Prof. Cook should turn out to be a thief! And to steal from a dead man at that! On page 698 he has taken from Sancho Panza his benediction on the man who invented sleep, and given it to Saxe. But I can't believe the professor's heart is at all wrong. His head has been turned by turning that bicycle.

I am profoundly thankful to be able to say that I don't need to do any feeding for winter. On the contrary, I have been obliged to take full combs from a number of colonies so that the queen might not be utterly crowded out. There's always something—yes, always *plenty* to be thankful for, if we're at all in a thankful mood.

What freakish things laying workers are! Lately I gave a sealed queen-cell to a colony afflicted with the miserable pests, and the laying stopped before the cell hatched. Per contra, laying workers commenced work in another colony while a number of queen-cells of its own raising were steadily going on to completion, stopping when a queen hatched.

How much better your own discoveries are than what you learn from others' Not long ago I discovered that, when using planer shavings in a smoker, time and vexation were avoided by having a few bench shavings to start the fire, and ever since that I have taken solid comfort in the improvement. Yet I now recall that I had read of the same thing years ago, and never thought worth while to try it.

Hairpins are turned to all sorts of service by the gentler sex; and now comes J. E. Pritchard, in *A. B. J.*, and tells how to use them to hold transferred combs: Pierce the side and bottom bars with a small awl at intervals of three or four inches, with two holes $\frac{3}{16}$ of an inch apart, and thrust cheap hairpins through the holes astride the septum, pulling out the pins when the bees have fastened the combs.

Goldenrod, according to some, is a fine honey-plant; according to others, no good. Possibly Mrs. Harrison gives the explanation in *Prairie Farmer*, where she says: "Where the nights are cool, as in the Green Mountains of Vermont, the goldenrod yields much honey, and the heads of bloom are full of bees at such times; but here, where the nights are warm during its blooming, it yields sparingly."

PAIN D'EPICE is a sort of gingerbread, sold in immense quantities at fairs in Europe, having the good quality of keeping a very long time. Honey is used in its manufacture, and just now there is considerable stir because a poisonous salt of tin is used to some extent, that allows molasses to be used instead of honey, and poor flour instead of good. The trouble might soon be stopped if every man who uses chloride of tin should be compelled to swallow as much as he uses.

HOW TO VENTILATE OUR BEES.

DOOLITTLE EXPLAINS THE MATTER.

Among the pleasant recollections of the past, the bees are ever foremost; and at ten years of age I was an anxious watcher of these little insects, of which father had some twenty colonies or more. These were kept in the Weeks patent hive, where the bottom-board was attached to the hive with wire hooks and staples, and with a button so arranged that, for winter, the bottom was allowed to hang suspended an inch below the hive, while in summer the button was so turned as to bring the bottom-board tight to the bottom of the hive except the entrance. With his hive, father had poor success in wintering bees, while a neighbor wintered his safely with a hive closed tight at the bottom and a two-inch auger-hole at the top. This success of a neighbor, and our poor success, caused father to fasten the bottom-boards of the Weeks hive in winter, or, rather, to leave them in winter the same as they had been all summer, while the holes in the top, through which the bees had access to the surplus apartment, were opened, and the surplus chamber filled with fine hay, straw, a lot of old garments, or something of the kind, which came most handy. Fixed in this way the bees wintered much better than formerly, and gave me the idea that what has since been termed "upward ventilation" was the proper ventilation for good wintering. Soon after this all the bees were lost by that dread disease, foul brood, and no more were kept in the family till 1869, when I purchased two colonies, which were the foundation of my present apiary. At that time (1869) there were plenty of bees kept near me in box hives, many of which were raised on half-inch blocks at the bottom all around, that being something similar to the rim one inch deep recommended by some of the great lights of to-day. I adopted the plan of upward ventilation, as it was then termed, although I now look at it as practically no direct ventilation, unless you can call it ventilation which we have when sleeping under our warm comforters on a cold winter night.

After a series of severe winters, myself and four others, all wintering with packing above the bees, or with upward ventilation as above, had 300 colonies of bees, while not one of the box-hive or lower-ventilation men had a single colony. By looking at bees in their natural home in the hollow of a tree, we find that the hollow is composed of partly decayed wood, especially above the combs. Thus in winter the moisture from the bees passes into the decayed wood which surrounds them, and is expelled each summer by the heat. In this we have something pointing toward the porous covering which many of our bee-keepers have used of late years, and also toward the chaff hives of the present. With these chaff hives, and the slow change of air taking place through the chaff or sawdust cushions we have something even better than the home nature provided for the bee; and with hives so arranged there need be little provisions for ventilation; for, should the entrance become obstructed by snow, ice, or dead bees, so that all air is cut off at the bottom, the bees can secure all the ventilation they require through the cushion from above, thus passing quietly along till a warm spell occurs, when they can clear their doorway. After years of experience with chaff hives, with sawdust cushions over the top of the brood-chamber, I have become convinced that there is nothing better along the line of hives for wintering bees than this, and I would hereby ask every reader of GLEANINGS, who is at all skeptical on this point, to prepare five colonies in chaff hives with sawdust cushions as above, which is according to the best approved methods, and take five others as nearly like them as possible, except that they be left in ordinary hives with lower ventilation, and see if all skepticism does not vanish at the end of three years. I even use these chaff hives with sawdust cushions for cellar wintering, and think that they have an advantage when bees are wintered in the cellar.

In connection with ventilation through porous covering, some think that, as all the moisture is carried off, the bees need water given them to keep them in a healthy condition; but I think it wholly unnecessary, for the reason that I believe it a bad plan for bees to breed much, if any, before the middle of March to the middle of April, according to the season. Colonies that commence breeding earlier are not as good, as a rule, on the first of June, as those of the same strength as to number of bees that do not commence to rear brood before the first of April.

I am becoming more firmly convinced that the practice of keeping bees in the cellar till pollen is plentiful in the fields is the correct one; and where bees are wintered out of doors it is a great help, where they are packed in chaff, along this line, for the sun's rays will not arouse the bees to activity, and from this to brood-rearing, every time it shines on them for a little while in the middle of the day, when the air is cool otherwise. This early breeding causes a much greater consumption of honey, and a greater loss of bees, without a corresponding benefit. When it comes steady warm weather, two bees are reared for an old one lost; while in early spring or late winter, two old bees are lost to where one young bee is reared; hence any thing that causes early breeding becomes a loss to us, both in bees and stores. Several have asked my views on this subject, and I have given them thus early, so that they may be in time for all to take advantage of them this fall, who wish to do so.

G. M. DOOLITTLE.

Borodino, N. Y., Sept. 17.

INTRODUCING QUEENS.

DR. MILLER AS WELL AS DOOLITTLE BAFFLED.

How I did prick up my ears when I read on page 617, at the head of an article about introducing queens, "Even Doolittle baffled!" and with what relish I read the whole article! Was it "pure cussedness" in me that made me enjoy Doolittle's discomfiture? Hardly that, for I like the man; but it's always interesting to see a man like him getting into trouble, for it gives you a bit of comfort to think that others besides yourself are sometimes beaten by the bees. And I've been repeatedly beaten in that very matter of introducing queens.

It seems to me that I've had more failures of late years than formerly. Years ago I was successful in every instance for a long time in introducing queens by merely waiting till the colony (or perhaps it was always a nucleus) had commenced to start queen-cells, and then simply placing the queen without any preparation whatever directly on one of the brood-combs among the bees. Adam Grimm told me he thought it would not always succeed, and at last it failed.

Perhaps one reason of my success was the fact of using nuclei. I think a strong colony is much harder to please with a new sovereign than a weak one. Another thing that makes a big difference, I think, is having all young bees. Combine these two factors, weakness and youth, and you have a pretty sure thing of it. Set a hive on a new stand; put in it two frames of brood with adhering bees, and my experience is that almost any thing in the shape of a queen will be kindly received after it has stood for two days. Possibly it may not be so much because the bees are young as because they are thoroughly disheartened. There they've stood for two days with not a drop of honey coming in, for all the field bees have gone back to the old hive, and they feel themselves weak, hungry orphans. Why shouldn't they want a mother?

The plan I successfully followed in introducing four virgin queens after a journey across the ocean, under the advice of "A Hallamshire Bee-keeper," might be successfully followed with either laying or virgin queens. The bees must be queenless for at least 48 hours, with nothing from which by any possibility a queen could be raised; then at dusk the queen dropped in from above as quietly as possible. Possibly that item, "at dusk," may be important. There are then no strange bees prowling about to make the bees suspicious of intruders.

Although I have had success in introducing queens by means of introducing-cages, there have been some failures. Partly on that account (yet more, perhaps, because I am given to hobbies, running entirely on one plan till something new switches me off in another direction) I have not used cages this year, but taken a different plan. Queens of my own raising have been raised in nuclei generally. Now, suppose a full colony becomes queenless, and I want to give it the queen of a nucleus having two frames of brood. The nucleus is in an eight-frame hive, the same as the full colony. Taking the full colony off its stand, I put in its place the hive containing the nucleus with its two frames, then I take one by one the combs out of the old colony, shake off the bees on the ground about four feet from the front of the old stand until the hive is full of combs; then the hive is covered up and left to itself, and supers put on if necessary. The bees on the ground will crawl or fly back in a subdued spirit, with no desire to molest the queen. There will be two frames still left with their adhering bees in the old hive. When shaking off the combs I reserved two in the best shape to form a nucleus, and the hive with these two combs and some bees is put on the stand previously occupied by the nucleus. If the stock is good, and the right kind of queen-cells are on the combs, nothing further is necessary, otherwise I try to give them right away a good queen-cell.

Practically I have exchanged two combs of the full colony with adhering bees for the two combs of the nucleus. So some one may ask me if it is not simpler to take two frames out of the full colony and put in their place the two frames of the nucleus with bees and queen. I have done that a good many times, and generally with success; but failures occur often enough to make it pay to take the other plan with its additional trouble. I do not remember to have made a failure by the plan described; but if I had a very valuable queen to introduce, I might not be willing to risk it.

When I get an imported queen I generally use the plan of having two or more frames of hatching brood, if possible having no unsealed brood. Doolittle speaks of this plan, and seems to think it's all right, except that sometimes one may forget to bring it in at night, or it may not be warm enough in the house, and so there's a chance for chilling. Let me tell you how I manage so there is no danger of chilling. I bore in the bottom of a hive a two-inch auger-hole. On the inside of the hive I nail over this hole a piece of wire cloth. Turning the hive upside down I nail on the hole another piece of wire cloth. Then this hive is placed over another hive containing a strong colony. Nothing is between the two hives, so that the heat from the lower hive goes directly through the auger-hole up into the hive above. In the upper hive I put the frames of hatching brood, make sure that every thing is bee-tight, put the queen on top of the frames, and quickly put on the cover. In five days the upper hive is allowed an entrance large enough for the passage of one bee at a time, and I have seen those five-day-old babies bringing in loads of pollen. In a few days more the hive can be removed to a new location. It would be better, I think, to have the hole larger, so that the heat would pass up more readily. The hole being doubly covered with wire cloth, there is no chance for the bees below to communicate with the ones above, so there is no danger of their hatching mischief. I have, however, sometimes used an upper hive without any bottom-board, with a single sheet of wire cloth between the two hives.

Marengo, Ill. C. C. Miller.

TO PREVENT INCREASE.

A REPLY TO DR. MILLER, PAGE 484.

I have just read Dr. Miller's article on page 484, six weeks after receiving it. He tries to tell an Indiana correspondent how to prevent increase; but I deem my method worth two or three of the one he gives. His plan is objectionable because it makes too much work, and queens must be clipped, a thing which the majority of bee-keepers do not practice or want to practice. His method will also, I think, interrupt honey-storing more than mine. My plan is, in substance, this:

I nearly always have a few weak colonies in the spring which I keep confined to three or five combs. Often, about the beginning of the honey-flow, I remove such a colony, which is generally sitting near another and stronger one, to a new position, and let the stronger one catch the flying bees. When a swarm issues I hive it on five or six empty frames, contracting the hive with dummies and placing it on the old stand, or the stand of some other colony that has lately swarmed. Either that evening or within a few days I remove the combs, bees and all, in the old hive to one or more of those weak colonies. When I get them all filled up by this means I add upper stories as needed, and fill them up with these combs after shaking them in front of the hive containing the new swarm. The few bees that still adhere to the comb I pay no attention to. For this purpose I select some of these same weak colonies, or some other ones that, for any reason, may not be able to go into sections. Such colonies I run for extracted honey. I usually prefer to have a queen-excluder between the two sets of frames. That leaves the upper one for honey exclusively. These colonies will soon be booming with bees; and unless the honey is extracted so as to leave plenty of room to store honey, they will swarm themselves — they will anyhow, sometimes. If you use a hive with a loose bottom-board you can simply carry the brood-chamber and set it on top of the other one—indeed, I sometimes do this without removing the dummies and filling up the lower story at all.

I am generally raising queens from some of my choice stock, and these combs come into good play for forming nuclei. Before the swarming season is over, some of these nuclei, with newly hatched and laying queens, are available for the reception of other sets of frames.

There are numerous details and variations in the system, that I have not mentioned, which any one seeking a method to prevent increase can work out for himself, if he is as bright as I am. I can go through any ordinary swarming season with a maximum increase, under this system, of 20 per cent—counting each weak colony one, and I generally have occasion to greatly reduce during the succeeding fall and spring.

I might add here, if you do not want to produce extracted honey you can put section supers on these double-story hives and stand a chance to get some honey. Or you can do as Dr. Tinker does—put the extra story on top of the section super, with a broad board—or honey-board—with a single slot near one side for a bee-passage, below the super and the upper story.

If you have Gleanings for May 1st, 1891, read in this connection my paper on "Swarming and the Honey Harvest," page 356.

Geo. F. Robbins.

Mechanicsburg, Ill., Aug. 15.

RAMBLE NO. 68.

A BEE-KEEPER'S OUTING IN THE MOUNTAINS IN CALIFORNIA.

Although the climate of California enables the people to work all the year round, there comes a time in all of the interior valley towns when the mercury frisks around between 100 and 115°; and all who can get away do so for a week or more. It is the boast of California that any kind of climate can be found in a few hours' ride, and it is only a matter of taste where the person goes. Some go to the coast and enjoy the waters and the breezes of the Pacific; others prefer to seek the cool and invigorating air of the mountains. The bee-keeper is not an exception to the crowd; but in the heated term he is found in some comfortable retreat enjoying himself.

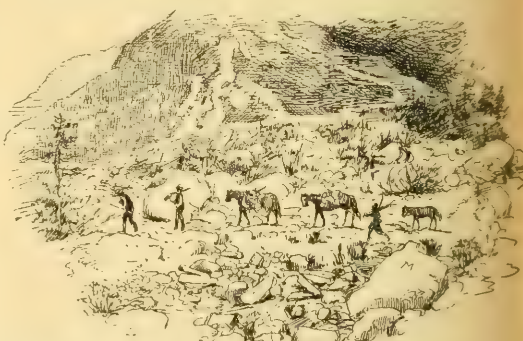
Two of my prosperous bee-keeping neighbors, Mr. H. E. Wilder and Samuel Ferguson, proposed that we go to the mountains for a week's outing. The proposal was agreeable to all of us; and Mr. Ferguson, being the happy possessor of a team, a sucking colt, and a wagon, there was nothing to prevent the accomplishment of our plans. When ready for the journey the rest of our outfit consisted of two saddles, several blankets, a box of provisions, two Winchester rifles, a double-barreled shotgun, 100 rounds of ammunition, and a camera. We had a commodious wagon, and in every vacant corner Mr. Wilder had tucked a watermelon. Mr. Ferguson and I mutually agreed that Wilder loved the melon, and we were convinced of it a few hours later when we struck a Spaniard with a load of a hundred melons, and he offered the lot for $5.00. Our friend was bound to buy the load. We had some long horse-ropes, and he wanted to string the melons and festoon the wagon. We finally compromised, and made things harmonious by adding a few more melons to our load. Coming events cast their shadows before them. Mr. Wilder will yet sit in the shadow of his own vine and fig-tree, but the vine will be the happy watermelon.

The portion of country we were trying to reach is known as the "White Water Basin," close under the highest point on the San Bernardino Mountains, the highest elevation in Southern California, 11,000 feet above sea-level, and locally known as old "Grayback." Another lesser mountain is known as "Baldy." Near Redlands we entered the San Mateo Canyon, and night soon settled down upon us, and obliged us to camp. We ate watermelons for supper, and fed the rinds to the horses. The bosom of Mother Earth was not a soft bed, and a good share of the night was spent in a study of the constellations, and a speculation upon the condition of apiculture on the planet Mars. It also being near the 10th of August, a large number of meteors were blazing across the heavens. On the whole we had a very entertaining night.

The eastern sky had hardly a forerunner of day when we were up and away, having breakfasted heartily on watermelon, and again fed the rind to the horses.

At Banning we halted to give the colt a rest, and the team a good square meal of barley. We ate another watermelon, and gave this rind also to the horses. From Banning we entered Cold Water Canyon, which follows a serpentine course for 12 miles directly into those big mountains. Banning is served with a copious water-supply from this canyon, and is fortunate in having it served ice cold direct from the heart of nature. For ten miles the water runs down an artificial stone and cement channel with as much of a fuss and a splashing as the waters of Lodore.

At a little past noon we arrived at the head of navigation—for wagons. We had got beyond the realms of dust, 45 miles from Riverside, and we camped in a shady nook, ate another watermelon and gave the rind to the horses, and enjoyed a delightful nap under the trees.



WHITE WATER BASIN—OUR PACK-TRAIN.

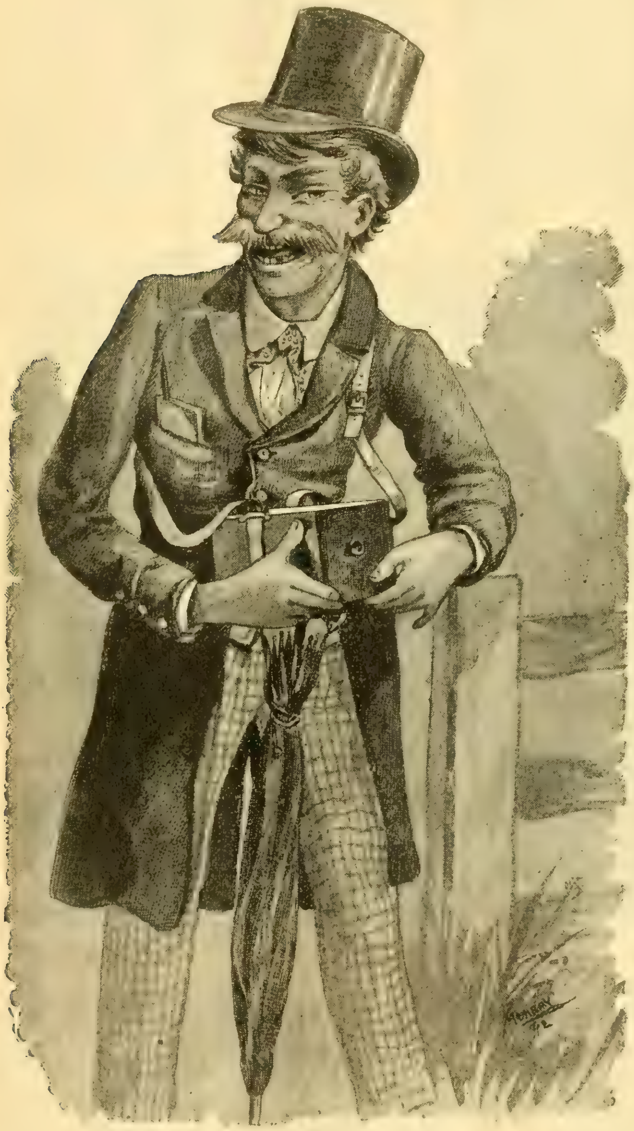
Near us was the cabin of a lone mountaineer. He was a bee-keeper in a small way, and gave a very good report as to the honey resources of the mountains. The blossoms open much later here than in the valleys; and if Californians ever practice migratory bee-keeping it will be to move bees from the valleys into the mountains, thus prolonging the season. Many of these canyons are well seeded to white sage and wild buckwheat. The latter plant continues to blossom for several months if there is enough moisture in the earth to keep up its development. Many of these canyons are entirely unoccupied except by many swarms of wild bees, and are waiting for some enterprising bee-keeper to step in and test their value for honey production.

From this point our mode of travel was to be changed; every thing for the next several miles had to be packed on the backs of horses, and over a narrow mountain trail. A long way up between the mountains we could see the pass we should have to cross; and though it was four o'clock we resolved to push on. Mr. Ferguson proved to be an expert at the pack-saddle business, and every thing was soon packed except a few watermelons. Mr. W. looked at them so affectionately that a couple were packed, and the rest were left in nature's refrigerator, that ice-cold mountain stream, until our return. Owing to the lateness of the hour our journey became a forced march, for the trail was longer and steeper than we imagined. The shades of night were, however, falling as we crossed the pass and hurriedly plunged into the next canyon.

Our anxiety now was to find water and a camping-place. Our trail was on a rapid down grade, and in a forest of immense pine, cedar, and fir trees, eight and ten feet in diameter. A cedar in the basin, from actual measurement, was 40 feet in circumference. As the shadows became deeper we had some difficulty in keeping the trail. There is so little travel in this wilderness that the trail in many places is blind. A "blind" trail is where short bushes branch over it, completely hiding it from view; but by entering at the right place, and pressing through, the branches give way and the trail is easily followed; but a blind trail becomes indeed blind under forest-trees at night, and we soon lost it entirely. While Mr. F. and myself were peering here and there for it in the dark we heard the *coo-ee* of Mr. Wilder, who was on ahead; and after exchanging shouts he gave us the welcome news that he had found water. We stumbled over rotten logs, brush, and rocks, and pitched our camp in a deep gulch, near a beautiful cold spring, and it was a rare good fortune to find it, for springs have a way of showing themselves for a few yards and then as suddenly disappearing. Our camp-fire lighted up the big pines. Our fatiguing forced march gave us a good appetite for another watermelon, and the horses had the rind. That night we had to make our bed on quite an incline, and had no little fear of slipping out of bed feet first.

WHITE WATER BASIN.

The light of another day revealed our lost trail and also another pass to surmount. This was easily accomplished, and we were looking down into a deep and wild region known as White Water Basin, the most inaccessible portion of the San Bernardino Mountains. Our descent here in many places zigzagged down declivities at an angle of 45 degrees; and here in this wild gorge, with no other outlet than over the narrow difficult trail we had traversed, some one at some time had made an abortive effort to build a rude sawmill; and the big wheel and timbers looked specterlike in their wild surroundings. A little beyond was an unoccupied, well-ventilated shake cabin, and close at hand an ice-cold stream of water, and for several days this was our headquarters. We ate our last watermelon here, and Mr. Wilder sadly gave the last rind to the horses.



THE RAMBLER BEFORE CLIMBING GRAYBACK.

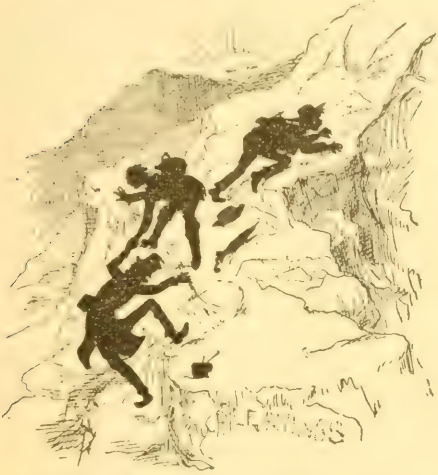
A few days were now spent in hunting. My companions strode out with their rifles for big game—bears, mountain lions, mountain sheep, wild-cats, etc. Signs of deer were quite plentiful, and some were visible; but State laws forbid killing them, and my friends were law-abiding: *they* would not shoot deer—oh, no! The Rambler contented himself with the shotgun and camera; and when we all gathered at night around our camp-fire it was the shotgun that brought down the small game for our repast.

After tramping around the lower mountains to quite an extent we held a council one evening around our camp-fire in relation to scaling old Grayback. There is no trail to the top from this basin, and the ascent is very difficult. The mountains here are scarred with deep gulches running up their sides. The ridge between the gulches is called a "hogback;" and to climb any of these mountains we must take this jagged way. While discussing the pros and cons of the effort, Mr. Ferguson mildly suggested that, if there were a big watermelon up there, Wilder'd get there certain. We all resolved, however, to get there, and were off at 5:30 in the morning, with a few rations and bottle of water each. For a few hours our climb was quite steady; but as we emerged from the timber-line our way was more and more obstructed. Our shorter respiration also made us take frequent rests. Deep chasms yawned at our feet, and a careless step would slide the victim down a thousand feet into a jagged abyss where reigned "confusion worse confounded," a fit scene for the location of Dante's Inferno.

After six hours of climbing, the last summit was scaled with a shout, and we found here a basin several acres in extent, carpeted with a coarse gray sand—disintegrated granite. At one side was a very attractive and beautiful snow-bank, several rods in extent. From a pool in its side we quenched our thirst, replenished our bottles, and indulged in the boyish pastime of snowballing, and this on the 6th of August, when people were sizzling with heat in the valleys below.

After enjoying our sandwiches, snow water, and a restful nap upon the sand, we sought the highest of the three mounts that crown the summit of Grayback, and had a view grand beyond description. To the south we looked down upon the San Jacinto Mountains, and the thriving towns around it. To the east the far-reaching Mojave Desert and the noted Salton Sea; north is a series of mountains and canyons, and away beyond, again, the desert. Over the distant mountains a thunderstorm is bombarding the wilderness, adding to the wildness of the scene. To the west we see what appears to be the blue of distant mountains; but the glass reveals it to be the Pacific Ocean. Our eyes follow down the range toward Los Angeles, and see the crown of Old Baldy, then the lesser Cucamonga; and away down toward the coast is a very prominent ant-hill. We pass the glass from hand to hand, and, "Why!" we exclaim, "that's Mount Wilson." Then we all put our thumbs in the armholes of our vests and smile. "And *that's* Mount

Wilson! What a fuss some people do make over climbing that little hill, and over a good trail too! Why! it looks as though it could be put on a wheelbarrow and dumped into the Pacific! Yes, yes! Los Angeles people must be easily satisfied to climb that little hill and call it grand."



RAMBLER CLIMBING GRAYBACK: NO SIDEWALKS HERE.

Our visit was limited to three hours, and we kept our eyes and imagination busy absorbing the grandeur. From such an elevation one gets a clear idea of the lay of the country and the location of towns, and can imagine the changes to be wrought in the next few years. Upon the summit of Grayback there is no vegetation except now and then a clump of hardy moss. The only life we saw was a butterfly; and not a great distance from the top we saw a honey-bee.

Our descent was by another route, but rough and full of interest. We broke camp the next day, and left the most grand and silent forest we were ever in. Our week's outing had cost us more hardship and labor than a month's work in the apiary; and though the dew rested on our faces while sleeping under the stars, we caught no colds nor rheumatic pains. No especial episode marked our homeward journey; therefore when you eat a watermelon, feed the rind to the horses and remember Mr. Wilder and the RAMBLER.

NOTES ON THE BICYCLE.

THROUGH THE GAS AND OIL REGIONS: A CALL UPON DR. A. B. MASON AND E. E. HASTY.

Some one has said, that "variety is the spice of life," and I am fast beginning to believe it. Good roads, no hills, no mud, no sand, no rain, make touring on the wheel easy but monotonous. Still, if I were to have my way in *starting out* for a day of cycling I should prefer to have no novelties of this sort; but *afterward* it is not so pleasant to look back upon.

You remember that I had left Norwalk after visiting S. F. Newman, determined to make a start, even if it did rain, which it did. While I was on the brick pavement all was smooth sailing. I was told there was only one hill after leaving the pavement, and that a clay one, that would be likely to give me any trouble, between Norwalk and the next town; but *that* hill! After the heavy rain during the forenoon, the mud was about the consistency of first-class soap—slippery and heavy. I will not attempt to give you my experience, but simply state that, on arriving at the top, I concluded there was no poetry in wheeling through the mud. The conclusion forced itself upon me that I must "clean up"—at least dispose of some of the surplus mud adhering to my shoes and the two wheels. After hunting about a little I found a crooked stick. With this I managed to scrape off the great clods of clay from my feet, and then with the same instrument proceeded to push the chunks of mud out from between the spokes. I was finally obliged to finish up with my bare hands. While thus engaged the residents along the street seemed to cast pitying glances, not unmingled with ridicule. All of this I accepted meekly. After the job was all finished I found a nice footpath along the side of the road, and on this I made good time, though I was obliged to run over briers for several stretches with my pneumatic tire, where a hedge fence had just been trimmed. But it was either briers or mud, and I chose the former, willing to take my chances on a punctured tire.

Just before I arrived in the town I observed that I was too muddy an object to go into the town, and too proud to receive the jeers of the "small boy." Before crossing a river I found a chance to go down into the water, and, by the slow process of splashing water with my hand, I managed in time to wash off the mud, and then with my hankerchief I wiped off the wet. After cleaning myself up, I proceeded to go into town, determined that I would take no more road. I next took the railroad track, and pounded the ties — literally so — for nearly twenty miles, some of the time crossing trestle-work. At the end of the day the pneumatic tire showed the effect of the journey, by having horrid gaps in one or two places.

As it was night I put up in the hotel in the town of ——. After a good supper I retired to the hotel office, or barroom. Three men were playing cards, and I was invited to make up the company. I meekly said I did not know how to play. The trio were greatly astonished, and I sat down to read the paper. They cursed good-naturedly over the game to such an extent that it made my blood fairly tingle. I was just deciding to go out of the room, when, in the adjoining room, or ladies' parlor, the sweet strains of "Nearer, my God, to thee,' rang out. A young lady had been practicing on a piano, and she finally turned to this beautiful piece, singing in a strong, clear voice, that wonderful hymn. I wanted to go into that room, where the atmosphere, I felt sure, was purer and better; but I thought it would be intruding, and so I heard on the one side God's name taken in vain, and on the other his name *not* in vain. It seemed impossible to me that the two kinds of sounds could very long continue together in conflict; and finally, to my great joy, the swearing ceased.

The next morning the roads had improved considerably, as the rain had stopped. I made good time without any novelties save now and then the troublesome dog, and finally found myself in Fostoria, 30 miles away. Here I remained for a couple of days, not with a bee-keeper, but with an old chum and classmate, Mr. Geo. M. Gray, printer and publisher. Fostoria is one of the great booming towns of Ohio. It has struck natural gas, and struck it rich, for immense glass-factories have started up, as the gas offers peculiar facilities. On Monday morning I started on my tour again, Mr. Gray accompanying me a part of the way on another wheel. We went through the gas and oil regions, and pursued our journey together as far as Perrysburg. Here Mr. Gray left me, and I proceeded on my way to Auburndale, a suburb of Toledo, where Dr. Mason resides. I landed in a region largely inhabited by Polacks, in Toledo. In making my journey through the country, I had been depending upon the directions given by English-speaking people; but here I was, in a maze indeed. Nobody knew where Auburndale or Wagonworks was, at least they gave me a shake of the head, although I knew I was within a mile and a half of the place; and when I did find somebody who professed to know, he directed me wrong. The result was, I wandered around aimlessly, misdirected for two hours, within a comparatively short distance of Dr. Mason's home. A small boy, also a Polack, hearing me inquire the way, finally gave me directions that sent me straight to Dr. Mason's postoffice. I had begun to mistrust everybody, and did not even thank him for his kindly service.

I found Dr. Mason just coming out of his postoffice. I called to him, but he failed to recognize me at first. Quickly recovering from his surprise, he broke out with "Well, well! where did *you* come from?" I accompanied him home, where he kindly dusted me off and made me look a little more presentable to civilized society. When a chap has been out on the road, covered with dust, wearing a knickerbocker suit, long stockings, low shoes, and a Canadian helmet hat, he feels as if he did not belong to decent society. But Dr. Mason and his family, like all other bee-keepers I have met, cared little for exterior, and I felt at home at once.

The next morning we took a look at the Mason bees. I had brought no veil with me, and, in accordance with my natural instincts, I stood a little aloof; but the doctor, bareheaded, barehanded, and without smoker or veil, proceeded to open up the hives, and ascertain what those bees were doing. "I *thought* they were bringing in honey," said he. "See here," he added, showing me a comb crammed full of capped honey. "These colonies need an extracting." He had been so busy that he had not had time to look them over before then; but he fully resolved to give them an extracting at once. It was after the regular honey-flow, but nevertheless a good supply was coming, evidently from sweet clover. Pretty soon the doctor began to feel for the top of his bald head, and then for his nose, for the bees were beginning to push in their stings at a pretty good rate. He was finally obliged to take shelter in the barn, while I helped him pull out one or two ugly stings. The next time he returned he had on a Thos. G. Newman globe bee-veil; as for a smoker, he would not bother with one for just two or three colonies.

A little later in the forenoon the doctor and I, accompanied by the Mason horse, already mentioned by Rambler, made a short run up to the residence of Emerson E. Hasty, at Richards, O. After making many crooks and turns we finally arrived at a very pretty country home. The first thing that struck me forcibly was a long beautiful double row of maples covering the driveway up to the Hasty house.

Just as we were about to get out of the carriage, our friend Hasty made his appearance. He had been working among the bees, having a veil and a hat on his head, the veil being tucked up under the hat at the time, ready for emergency as we shall see. He had been watering some of his choice flowers, for it was easy to see that he was passionately fond of them. He was growing them in luxuriance all about the apiary, and here and there he showed us some of his choicest beauties.

True to the instincts of all bee-keepers, we finally worked into the apiary; and after we had been there a few moments I rather concluded that the temper of the Hasty bees was nearly as bad as that of the Punics, or Tunisians. In every apiary there are some novelties, or some new wrinkles, and these we examined while the bees now and then reminded us of their presence by a fresh injection of *apis virum*. The view in Rambler's picture (see p. 914, Dec. 1, 1891), of the apiary, is a good one. Mr. H. apologized for the appearance of his yard, adding that he had not expected visitors. Nevertheless the apiary presented a much cleaner and neater appearance than most of them do in the country. After enjoying a pleasant chat we took our departure, and soon arrived at the Mason home.

Early in the afternoon the wheel and I started on our journey on the most direct route to Detroit, some 75 miles away. No novel experiences met me on the way, save once, when I came to a standstill. It was not at the end of the road, but the bridge was down, and the water was clear and deep. I finally espied a raft, and, with fear and trembling, crawled on to it with the wheel. It *just* held us up. By proceeding cautiously I made the other side, and had the satisfaction of landing my Safety in safety. Well, you know the rest. I got into Detroit, feeling unusually well after my long ride.

THAT PECULIAR DISEASE.

ONE WHICH RESEMBLES FOUL BROOD; HOW TO CURE IT.

I see on page 594, August 1, and page 674, Sept. 1, what you say about the disease that resembles foul brood. If you will turn to page 256, 1883, you will there see what Milton Hewitt said. Is this not the same disease? Also on page 398, same volume, is another article from L. C. Lincoln, speaking of something similar. You will also notice what I said on page 461, same volume. I then stopped the disease by giving a new queen. I have since cured quite a number of colonies by requeening them. It will work every time if there is a good honey-flow; but if there is no honey coming in, it will not work so well. I have also cured them with the carbolic-acid solution mixed in sugar syrup, feeding them liberally for a week or two. I also had three colonies affected in the same way two years ago, just before the white clover began to yield honey, and it disappeared during the honey-flow, and has never returned. This present season I had one colony affected. I cured it by simply feeding sugar syrup for about ten days.

By the way, I think bees are something like ourselves—plenty of good healthy food, and something to do, is the best of medicine; and hereafter, in treating the above disease, if the queen is not an extra good one, off comes her head, and I'll replace her with a young one; and if there is not plenty of honey coming from the field I will supply the colony with a feeder. This disease has about destroyed all the bees in box hives in this country. I think it is contagious to a certain extent, but nothing like real foul brood. P. D. Miller.

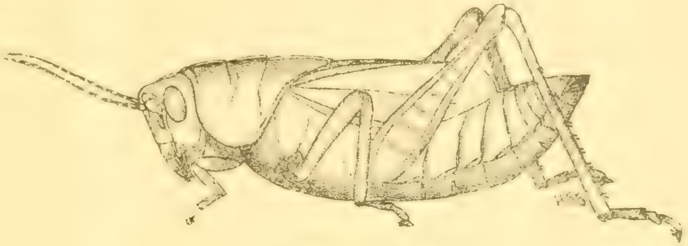
Grapeville, Pa., Sept. 13.

[After carefully reading the references you name, we are not so certain that the disease to which you refer is the same as the one which appeared of late in our yard and in other places; still, it may be the same. In any event it is good policy to first requeen; and, if that does not answer, to do something else.]

A MAMMOTH LOCUST.

SOMETHING ABOUT GRASSHOPPERS IN GENERAL.

The huge locust received through you from S. F. Herman, Tuscaloosa, Alabama, is one of our largest locusts. It is known to science as *Dictyophorus reticulatus*. I inclose a good drawing natural size which gives an excellent idea of this colossal hopper. It is fully three inches in length, black, with obscure reddish reticulations on the tegminæ, as the thick upper wings of such insects are called, and is marked with yellow as follows: A long narrow strip runs the whole length of the body, from the vertex, or top of the head, along the pronotum, as the back of the first thoracic ring is called, and extends the entire length of the abdomen, clear to the tail. On the abdomen this broadens out posteriorly on each ring, so we see a succession of yellow triangles, with the vertex of each in front. The pronotum, the saddlelike piece on the back, between the head and wings, has a narrow yellow border behind. There is also a yellow short line on the front just below the eyes. The hinder margin of each ring, on the under side of the abdomen, is bright yellow, and a broken yellowish white line marks each side of the abdomen. A sober olive-colored ring surrounds the base of the four hinder legs, and lines of the same color mark the posterior thighs. The tegminæ, or upper wings, are short. The under wings are quite small, and are brilliant red, bordered with black. The insect is confined, I think, to the Gulf States, and, like all locusts, feeds on vegetation. I judge it must be a clumsy, awkward species, much easier to catch than the most of our northern species. It is easy to distinguish the locusts, as entomologists call these hoppers, from the grasshoppers. These are usually more robust; are gray, dusky, or black, and have rather short antennæ, as the hornlike organs on the head are called. The grasshoppers, on the other hand, are slim, usually green, and have very long antennæ. The locusts place their eggs in the earth, and are often so numerous as to be terribly destructive. The grasshoppers, which include the katydids, fasten their eggs to plants, and are rarely so numerous as to become very harmful. Grasshoppers and some of the locusts stridulate —that is, make a whirring sound by rubbing the legs against the wings. This noise is heard constantly in late summer and fall. Both locusts and grasshoppers undergo incomplete transformations; that is, they look alike at all ages, but the larvæ have no wings; the pupæ, mere wing-pods; while the adult has complete wings, and is sexually developed. I should like more of these huge locusts, as this is the first one in our collection.

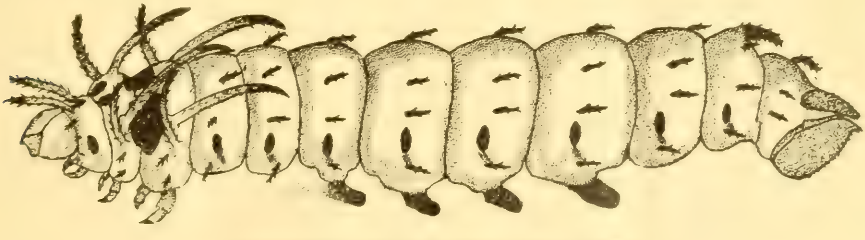


LOCUST—FULL SIZE.

Mr. Jas. P. Brown, Colora, Md., writes me as follows: "I send you by mail a worm, which to me is a stranger. I have been very much interested in your writings in GLEANINGS; and hoping that you may be able to spare time to name and describe this remarkable specimen, I send it to you."

This is even more unique and startling than is the locust sent by Mr. Herman, from Alabama. It is the regal walnut moth. We call it *Citheronia regalis*. I send a drawing which accurately represents this larva, which has been called the "horned devil." It is over four inches long, three-fourths of an inch thick, and is dark green in color. The head and tip of the body are brown. Small black spines, as shown in the figure, mark each ring, while ten large brown spinous hornlike organs, eight of which are very long, are to be seen just back of the head. As the insect throws up its head and waves these horns it looks very frightful, and, though as harmless as a kitten; it would no doubt throw many a timid person, brought up, unfortunately, to fear and dread such animals, into spasms. One is as safe in handling these caterpillars as he would be to handle a flower, which is really no more beautiful or interesting than this larva. These larvæ feed on hickory and walnut. The moth which they produce is a large one, of a rich brown color, striped with drab, and spotted with bright yellow. The body is brown, and bears cross-lines and spots of yellow. It is one of our most interesting insects. A. J. COOK.

Ag'l College, Mich., Sept. 3.



THE REGAL WALNUT MOTH, FULL SIZE.

WHO IS MY NEIGHBOR?

SOMETHING FURTHER—SEE P. 659.

Friend Root:—I think your reply to Mr. F. H. Finch, in Sept. 1st Gleanings, is a little inappropriate. The argument of the farmer straining to pay his mortgage off is hardly to the point. The greatest good to the greatest number is what brings happiness to communities, and communities are of more importance than individuals. Your argument seems to be that the seller of any commodity, no matter whether it be a luxury or a necessity, is justified in getting all he can for it. The coal barons, then, are quite right in raising the price of coal. If the poor can not pay the price, let them go without! You commend the conduct of Mr. France, who tried to buy a crop of blackberries that he might bull the market. The millionaire speculator, then, who makes a corner in breadstuffs is doing a Christian work! The poor may have to pay more for their bread, but what does that matter? I fail to see that Mr. Finch accuses you in his letter of having *cheated* any one, and I do not understand how you can place that construction on what he says. It seems to me that Mr. F. simply makes the accusation that you are a little inconsistent. He would not, I imagine, write as he did to you to any firm of nurserymen or gardeners whose relations with the public were of a purely commercial nature. But it is somewhat different with you. You are fond of sermonizing, and pointing out to your fellows their moral duties. The Christian Endeavorers of your neighborhood are a source of pleasure to you, and no one doubts that your writings do a considerable amount of good; but they also lay you open to a criticism that others, whose religion is less demonstrative, would escape.

Your line of reasoning may be logical, but you ought not to feel hurt because some others view it in a different light. W. E. Money.

Cobham, Va., Sept. 11.

[I am very much obliged to you indeed, friend M., for your kind letter, and your suggestion that friend Finch and I did not understand each other. I did not think of carrying the idea that the "seller of any commodity" might with a clear conscience charge all he can get: in fact, I drew the line fairly, I thought, in my concluding remarks when I said, "If the *farmers* were getting rich, and were proud and arrogant toward the banks and railroad men," etc. You may be aware, perhaps, that I have, at different times during my life, taken up a great variety of industries. In my effort to find work for people to do, I have stood behind the counter and sold a great variety of goods; I have worked in the factory, and I have also worked in the fields. The products of the farm and garden are quite different things from the goods produced by our large factories; and, in fact, they are quite different from flour and coal. These latter are not perishable goods, and are obtained from so wide an extent of country that there is a uniform market price, as, for instance, the goods on the shelves at a hardware store. Now, if a merchant should purchase either coal or flour at a certain price, say a dollar, and charge his customers two or three dollars, it would be extortion, providing, of course, he knew where he could get an unlimited supply at the price mentioned. He would not be doing by his customers as he would be done by.

I hardly need tell you that the products of the garden, and many products of the farm, are different matters indeed. Potatoes are worth to-day in our market from 60 to 70 cents per bushel, and I am exceedingly glad of it. It rejoices my heart every time I see a load of potatoes come into market. A neighbor of mine has, by great care and perhaps some good luck, secured 2000 bushels of nice potatoes. Suppose he should say that 40 cents is enough, and that he believed it to be unchristianlike to take more. If he were to do this it would do great damage and great wrong to hundreds of small potato-growers who are dependent upon their crop of potatoes for the necessaries of life. If potatoes are enough cheaper somewhere else, so somebody can bring in several carloads, and the supply is great enough to keep the price down to 40 or 50 cents, it would be all right; for, to overbalance those who suffer here, there would be a benefit to potato-growers where these carloads came from—enough to compensate.

I heartily agree with your expression, "The greatest good to the greatest number." Friend Finch, however, by his own confession, did a *little* good to a small number, and by so doing did a *great damage* to a *large* number by breaking down the price when it ought *not* to have been broken down. You see, we can not have an established price on garden-stuff and perishable fruits as we can on the goods we find at the hardware stores.

Another thing, there are so many people just now deciding that farming does not pay, and there is such a widespread stampede from the farms into the towns and cities, that real trouble is coming unless the farmer and gardener get some encouragement; and this encouragement must come in the way of better prices. Our own industry of keeping bees is exactly in line right here. The townspeople and others who work in factories can take care of themselves, even if prices do come up, a great deal better than the farmers and gardeners now take care of themselves. Very likely the town and city people will not fall in with my position here; but whether they fall in or not, it is right. If our boys continue to leave the farms and crowd into the cities, and if encouragement offered to those who work in the open air is not increased, our country is going to suffer, not only physically and financially, but it is going to suffer *terribly* in a moral and spiritual way. While I am writing, I tear out the following clipping from the *Rural New-Yorker* of September 17:

> United States Senator McConnell, of Idaho, began his prosperous career by starting a truck-patch in the then Territory and selling the miners cabbages at 75 cents a head, and turnips at 45 cents a pound!

Now, that pleases me. I should like to shake hands with Senator McConnell. If the miners were glad to get his cabbage at 75 cents a head, and turnips at 45 cts. per lb., I think it was perfectly right that he should charge it; and I am glad to see progressive farmers and gardeners look over our country and hunt up corners where there is plenty of money and a scarcity of vegetables. Our good friend J. M. Smith, of Green Bay, Wis., built up a great business by selecting an unpromising piece of land for his garden; but to overbalance this he was so near the mining-camps that he was sure of big prices for his products. Gardeners, farmers, and fruit-growers should have inducements to scatter themselves over the face of the earth; and in one sense I consider them like Christian people—"the salt of the earth."

Thank you for your concluding remarks, friend M. I did not feel hurt at what friend Finch wrote, but I did feel, and I do still feel, that he, by his mistaken acts, was hurting and damaging the interests of a class of people who sadly need encouragement. Our stenographer very justly suggests that those big onions (and garden-stuff in general, when it brings large prices are not really a *necessity*. If people could not afford to pay such prices for the onions, they could buy cheaper ones that did not look quite as handsome, but which were, doubtless, nearly as good; or they could purchase a great variety of other vegetables that were plentiful and cheap. I did not for a moment mean to encourage extortion in the *necessities* of life like flour and coal, especially during a time of unusual public distress; nor did I think of recommending any thing that would help monopolies, trusts, and millionaires; and when I say "the greatest good to the greatest number," I should wish to have it understood that I always mean to be partial to the poor and *hard-working* people. Millionaires do not *need* help and encouragement, as we all know.] A. I. R.

WHO IS MY NEIGHBOR ?

SOME WISE WORDS FROM T. GREINER.

Friend Root:—Your article under this heading, page 659, accidentally comes in my way the second time, and I could not help reading it over once more. Although I have more work of a literary nature on hand just now than I can handle, I can not withstand the temptation to lay my other matters aside for awhile, and send you a few words commenting on the question presented in the article mentioned.

First, I must state, with all emphasis, that the farmer or gardener is entitled to every penny that his products will fetch in an open market. Average farming and average gardening do not pay. I make this statement at the risk of being called a "calamity howler," for the crop reports back me up in it. The average crops, such as given by the statistics, as, for instance, 10 or 12 bushels of wheat, 75 or 80 bushels of potatoes, etc., per acre, can not possibly leave any profits. The man who produces them receives but a fraction of what his labor is really worth in the open market. Specialists in wheat and potato growing, etc., on the other hand, make these crops pay them good profits. Should the latter, then, refuse to accept the full market price for these products, on the ground that their profits are too large for their consciences, depress prices, and make the business still more unprofitable for their less skilled brethren? Nay. Superior skill should find superior reward.

I believe that cheapness of the necessities of life would be a blessing to our people. In fact, prices of all products have a downward tendency, and yet I believe that the soil-worker is usually a little at a disadvantage. If the law of supply and demand alone were to regulate prices, and allowed to establish them on a more natural basis than they are at present, the soil-worker would be enabled to materially reduce the cost of production; and, if he has a level head, and manages things with ordinary skill, to put cereals and fruits and vegetables into the market, even at lower figures than now usually obtained for them, with a better chance of making the business pay. At present the farmer, as a class and a whole, is not making money. I do not know of a single instance of a man who, in the last 20 years, has commenced without money and has accumulated wealth *in general farming*. I know instances of money being laid up by especially shrewd people who made a specialty of this or that crop; but they got only the just reward for their skill and painstaking. Forced vegetable crops can hardly be called necessities of life. They are at least half-and-half luxuries; and people that want them can be expected to pay the full market price for them. It would be foolish in such case to talk of oppression, or taking an unfair advantage of our neighbor. I am naturally of a liberal disposition. I give away a large share of my surplus of vegetables and fruits to neighbors, etc.; but I have no scruples whatever in taking for the products I send to market every cent that the salesman can get out of them for me. Yet I admire the conscientiousness of our friend Finch, of Alabama. Would that we could instill a little of it into the coal kings who got immensely rich when we paid them $4.50 for a ton of coal, and who now force us to pay an extra tribute of $1.50 per ton! Would that Mr. Finch could spare a little of that conscientiousness for some of the Bell Telephone Company, who might give us much better service at one-tenth the present cost, and then amass an immense fortune. Let a little of that conscientiousness go to some of our highly protected manufacturers, too, who are only too ready to take advantage of restricted competition and squeeze the consumer on one side and their employes on the other; a little of it, also for politicians in high and low places, etc. But then, I hardly dare to hope that the millennium will come yet in this century. T. GREINER.

[Well done, old friend. I am verv glad indeed to have you come in and back me up by saying what I wanted to say, better than I am able to say it myself. I want to take exceptions, however, to just one sentence of yours: "I do not know of a single instance of a man who, in the last twenty years, has commenced without money, and accumulated wealth." Of course, this refers to farmers in general. Now, I suppose the difference in opinion will be in regard to the definition of the word "wealth." *I* know of hundreds of farmers who commenced with nothing, and have earned a fair competence by continuing on the farm. It seems to me they have as much wealth as a man needs to make him a happy and useful citizen. I want to thank you especially for the plea you put in for our good friend Finch. I most emphatically indorse it; but at the same time I think he is making a mistake, and wronging his neighbors by blocking the way for them to get the highest market price for their products.]

LADIES' CONVERSAZIONE.

CUTTING OUT DRONE COMB, ETC.

BLACK OR ITALIAN BEES—WHICH DO I PREFER ?

I fear that, in one of my articles to GLEANINGS not long since, I gave a wrong impression about wintering when I said, "The blacker, the better they wintered." Since spring, I think it more the locality that made part of the difference in wintering. Bees that were so situated that they could gather basswood honey last summer wintered better than other bees; and the bees that were kept in and near the basswood timber near us were blacks and hybrids. Again, an apiary of 20 hybrid colonies nearly all wintered near us, when our Italians fared so poorly. On inquiring into all the whys and wherefores, I find they fed them up for winter in pie tins, extending the feeding some five weeks. The long time of feeding caused them to raise brood, while we fed ours up in two or three feeds. Our bees were all old ones that went into winter quarters, consequently they died before they could raise enough bees to fill their places in the spring. Yet I do believe the black here is a hardier one for wintering than the Italian; but the Italian is superior in so many ways that it makes an apiary more profitable to keep them. The pure blacks run so that they are more liable to lose their queens if handled, and it is difficult to find their queens after the colonies have become populous, as they run so badly. We bought a few black and dark hybrid colonies this spring. The queens were very prolific. They filled their hives with bees, but they don't gather so much honey as good hybrids or Italians.

As the old honey of last year is almost as black as tar, we extract each comb before giving to the bees, and we are surprised to see so much drone comb, which we have been carefully cutting out. I don't see how so much drone comb got into our combs, for we have for years been cutting it out, and always watch our combs when being built. Perhaps the hives have been heated, and the combs have sagged. I suspect that was the case with the combs that were built on foundation starters.

TRYING OUT BEESWAX.

Yesterday I gathered up all my scraps of drone combs, etc., and tried them out by heating in our old wash-boiler filled with water, then dipping them out into the wax-extractor, and letting them drain a few minutes, then dipping back, and heating and draining again until I was sure I had got the wax all out. I am sure I save much wax by pouring it back into the boiler three or four times, and heating over. I had 60 lbs. of beeswax, clean and yellow. We have a solar wax-extractor also. The scraps that were rendered by the solar extractor I saved and heated up in a boiler of water, and dipped out into our Root wax-extractor. I got just about one-third as much wax, perhaps not quite, as was taken out by the sun; and each solar extractorful was set and drained several days before emptying. The solar extractor does not render it out half as fast as I thought it would—perhaps because of so few hot sunshiny days this summer.

Colonies that have poor queens, I think, are crosser than those with good ones; also queenless colonies, if large, are much more difficult to handle than after the queen becomes fertile and is filling the hive with eggs. This summer, when I found a full colony queenless I gave it a queen from a nucleus hive, as I do not find queenless colonies work nearly so well in sections as those with good laying queens. The more thrifty the queen, the more section honey is stored.

We had a few colonies quite a distance from the house. I prevented swarming entirely by changing one comb in the center once a week, changing the same comb each time. It is some work, but I don't know that it is much more if any more work than the hivers would be; and then we have that one comb of eggs or small larvæ to build up other weak colonies. The comb at the latter part of the harvest need not be entirely empty of honey at the top of the comb.

Honey is retailing in our home market yet at 20 cents. Our two colonies that gave 90 pounds each, if sold at 20 cents, would have brought us $19.00 already and probably a fall crop; but likely the price will come down to 15.

HOW TO CURE BURNS; TO GET BEES OUT OF THE TOP OF A HIVE, ETC.

To cure a burn, light your bee-smoker and smoke the burnt place vigorously from two to five minutes, holding the nozzle of the smoker as close to the burn as can be borne. The heat and smoke will draw out the fire so it will give no more pain, or but little, though it may blister a little.

When feeding bees, or working with them otherwise, if they run over the top, and smoke is not at hand, if a cloth is thrown over the hive and drawn to one side before placing on the cover it will clear the top of the hive of bees, and the cover may be placed on without killing any of them. Of course, the cloth is left on until some other time, to be removed.

When mixing sugar syrup for bees, put the water into the vessel first, then pour in the sugar, and it will dissolve quicker and not need a fourth the stirring.

When bees are not gathering honey, and one is desirous of working with them, work but a hive or two at a place; that is, skip around, first one side and then the other; and when they get too lively to work, put one quart of sugar to 12 quarts of water, and put it out in some sunny place, in a wooden feeder. The first few times in being fed it will need to be sweeter; but after being taught to go to the feeder they will take it readily in the summer and fall. Last spring they would not take rich sugar syrup from our outdoor feeder. I found I could work with bees so long as I wished to any time this summer, by thus feeding.

I saw it recommended in some periodical, to put thin honey into combs that are filled with bee-bread, and let it stand a day or so, and then rinse it out and place the combs between other combs in a hive of bees, and they will remove the bee-bread. Our bees will remove all pollen gathered in this locality by placing the combs in the hive of bees, no matter whether in the brood-nest or above, or at one side, and the combs do not need any honey poured into them. We had over 1000 such combs to care for after they had many worms in them, although we picked out those we could easily get at, and most of the cocoons, after which the combs were placed in the hives of all colonies that did not have section honey on, and they rid them of all moths and the most of the cocoons and pollen. They cleaned them up beautifully. In those hives that had supers on we set four to six combs in front, and left them there three or four weeks, and they too were rid of bee-bread, as we could see the little round pellets or pills, they ought to be called (perhaps capsules would be a better name), in piles on the board under them. Some of the bee-bread was white from the flour and corn meal fed them in the spring.

Mrs. L. C. Axtell.

Roseville, Ill., Aug. 10, 1892.

A CHEAP PAINT FOR WINTER CASES.

AN INTERESTING EXPERIMENT FOR THE CHILDREN.

I am painting winter cases, and think others may like to learn of a cheap paint. I am using yellow ocher mixed with equal parts of kerosene and linseed oil. A gentleman who uses this for painting barns likes it, and says that it wears well. The winter cases are made of good lumber, and will each contain two colonies. This insures one warm side for each colony. I use a great many newspapers around and over the hives. I like this way of wintering, because they can have the protection so much earlier and later.

BUTTERFLIES.

I will tell the juveniles how they may try an interesting experiment. Look on the milkweeds for a striped worm. Place it under a tumbler and feed milkweed leaves. If well grown it will soon crawl to the top, hang itself by a little web, and—you must watch closely or you will not see how it is done, but you will see a beautiful chrysalis of green and gold. Beneath in a little heap will lie the old skin. Watch the chrysalis and you will see the dark spots of the butterfly's wings appear. In about twelve days the pretty creature comes forth.

I shall try again to induce the bees to take honey from surplus brood-combs. I will take them away until they have become accustomed to living below, and storing there such other stores as are given them. Then by uncapping the honey and inverting the frames in the upper story I think they will be promptly cleaned. Warmth is essential in all feeding.

As the raspberry is an important honey-plant, will GLEANINGS please give an article on its enemies, and how to meet them?

LIBBIE WILLIAMS.

Delavan, Wis., Sept. 17.

HOW MRS. HARRISON KEEPS COMBS FROM THE MOTH WORMS.

In the general round-up of the apiary in the spring there were many colonies that did not answer at roll-call. I cleaned out the tenantless hives and put them into the cellar with their complement of combs. Some of the hives did not become entirely tenantless until quite late in the season, and the bee-moths were on the wing, depositing their eggs. When swarms issued, the hives latest carried into the cellar were issued; and if moths had hatched in any they were the ones chosen.

I looked over the combs occasionally, and did not allow any cocoons to mature; and as the windows were covered with wire gauze, none could come in. I expected to burn sulphur to destroy the grub of moths; but when swarming was over I examined all the remaining combs, and could not find one. This morning, Sept. 7, I could discover none. This storing of combs in the cellar has saved me a great amount of hard work and worriment, and I shall practice it in the future.

Our bees have stored very little surplus honey this season, but are now pushing out lively in the direction of the river-bottoms, and I am in hopes they will secure sufficient stores for the winter.

MRS. L. HARRISON.

Peoria, Ill.

UNCLE TOM'S CABIN OF SPECKLED BEAUTY.

TWELVE MONTHS OF POULTRY LIFE: AN INTERESTING CHICKEN-STORY FOR THE JUVENILES. BY MRS. AXTELL.

CONTINUED FROM P. 702.

After this long talk with mother Biddie we all ran out upon the green grass, and mistress turned mother Biddie out of the coop for the first time since we were put in there. You ought to have seen how glad she was to get out. She jumped and ran and flew with all her might, and came near scaring us out of our wits. Shut in that foul-smelling coop for six weeks, and never let out once, with nothing but corn and corn-meal dough to eat, no nice gravel to eat, that all poultry must have to make them feel well, she said if mistress had kept her in much longer she knew she must have died of disease and vermin; and as she said this, how she did make the dirt fly, scratching and hunting for gravel, and rolling in the dust to rid herself of the parasites that kept us uneasy all night of late!

Mistress Brown came out with a basin of kerosene and water and a whisk-broom, and turned our coop back and gave it a good sprinkling, and cleaned off the floor of the coop, and moved it to a fresh piece of ground, when the rats ran off.

On seeing the rats, mistress said she would set the coop up off the ground, so nothing could hide under it to kill us, which mother Biddie said was a nice arrangement, as it would afford us chickens place to quickly run under when a dash of rain came up suddenly.

When night came, mother Biddie did not want to return to the coop, because she had been kept there so long. She said master Williams would not have allowed her to be shut up a prisoner six long weeks. He used to let all his hens with young chickens out two or three times a week when it was warm and dry; and when the chicks were three weeks old the hens were let out with them every day when not raining. What nice times we did have scratching for worms and bugs, and catching grasshoppers, which made us grow fast! and we were not bothered with hen-mites either, because our coops were sprinkled with kerosene and water quite often, and a healthier lot of chicks you never saw.

Mistress Brown said mother Biddie must go back into her coop, and she threw some cornmeal dough down for us to eat; and when mother Biddie was not thinking she just ran a long piece of stiff wire, some six feet long, with a loop bent up at one end, in the shape of the top of a letter f, and the other end of the rod was bent to form a handle to hold by. Mistress slyly ran the wire up under mother Biddie, and gave it a quick jerk, and it caught one of mother Biddie's feet. Oh my! how she did jump and squeal! and we were all frightened, but it did not hurt her much, and she was put back into the clean coop.

It smelled terribly strong of kerosene for several days, especially at night; but it did not hurt us.

The coop was now high and dry off the ground, and we were glad of that. It had a wide airy crack in the bottom, which I think mistress did not intend to leave. She said she must give us a change of feed, if she wished us to ever get large enough for broilers, as we looked so poor and little. Mother Biddie said she ought to have thought of that sooner, as chicks that are stunted when young will never make so large nice poultry as if properly fed at first. She said master Williams was particular that all his young chicks should have curd made from sour milk; and the corn meal was made up into bread, and baked, for very young chicks. We were occasionally treated to wheat, oats, and buckwheat.

Clara washed out our water-dish and poured in some clabbered milk; but we would not drink it at first; but as we could get no water we soon learned to love it better than water. How we all crowded around it in a pretty little row! Little mistress said, when one head was bobbing down for a drink, other little heads were bobbing up; and, oh how she laughed! We were almost scared at her, she laughed so loud.

She gave us such piles and piles of food we could not eat it all, and old Robinson and his mates got more of it than we did. Sometimes they drove us away and took it all. How we wished we could ask for that box arrangement to be placed in front of our coop, that mother Biddie had when she was a chick, as old Robinson was so big he nearly crushed us when he stepped on us, so eager was he to get our food!

Sometimes mistress Clara would drive him and his mates away, and sometimes she would set little dog Fido on him, and that taught Fido to chase us. Little Bennie, Clara's brother, thought it fine fun to see Fido chase us. He caught and killed two of us, and carried one to the house in his mouth. Mistress Brown saw him have it. and took it away from him and whipped him hard, and showed him the poor dead chick, and whipped him again. After that he never chased us.

One very warm night we went to bed very happy; and as mistress Brown had placed a board up in front of our coop every night since the rats bothered us, it was so warm we got over the hole in the floor, so as to get air, as there were thirteen of us left, more than half-grown chickens, and it was very warm in the coop. The old rat had not forgotten where he could get food to eat, so he thought he would have some more chicken, and caught some of us, and tried to pull us through the hole in the floor; but we were too large to pull through. But he held on to my foot, and, oh how he did hurt! He pulled and pulled, and I squalled, and mother Biddie squalled, and mistress Brown came running out. She said she did not see what was the matter of those chickens, as they were shut up tight in the coop. She knew it could not be rats. She went back to the house, and in a little while another one of us was caught by the foot, and we all squalled again; and so we had our feet caught and bit several times that night.

When little Clara came out in the morning to feed us she said she was so sorry, for Beauty (that was my name) and Tommie had each lost a foot, and one other chick had lost a toe. She told her ma, who came out and examined the coop, and said it was no wonder, as there was such a great hole in the bottom of the coop a rat could almost crawl through. Brother Tommie and I had to hobble around on one foot, and suffer much. Mother Biddie said it was carelessness, thoughtlessness, laziness, and ignorance that caused much of the suffering in this world, and that made people so poor.

Mistress had one coop of downy little chicks, nearly black (as all little Plymouth Rocks are when just hatched, the pullets being the darkest). This coop of chickens was set close to the bees because it was a nice shady place, shady at noon, but had the sunshine morning and evening. I guess she forgot that bees would sting a black chicken when they would not notice a white one; and they will sting little downy chicks worse than when feathered out. The bees stung those little black chicks so badly that it was pitiful to hear them chirp so often, and see them run to the coop with two or more bees stinging them. Sometimes their mother would catch the bees in her bill, and pull them off, and sometimes some of the older chickens would pull them off. Several chicks died from the effect of the stings before the coop was moved.

After a few weeks, my stump of a leg, and Tommie's, got well, and they called us "stumpies;" and little mistress petted us a great deal because we were cripples.

When master Brown worked with his bees we learned to follow along with him, and pick up the roaches that ran out of the hives. We got so tame he rather liked us because we caught the roaches. He told mistress we tagged him around like little dogs, and would run to him as soon as he went down into the apiary. Sometimes he would set his nice honey down. We soon found out it was delicious. We picked into some of his nice combs, which made him very angry and throw sticks at us; but I guess honey tasted just as good to us as it did to him. He said we bothered him ever so much, for he did not dare to set honey down anywhere, because the two stumpies had taught all the other chickens to eat honey, and it would teach him a lesson never to let chickens get a taste of honey.

By this time the weather was very warm, and we were shut up tight in our coops at night to keep out the rats. Oh how warm and uncomfortable we did get! Master Williams called one day to see how mistress Brown succeeded with the pure-bred poultry she got of him. He told mistress that he was not troubled with rats since he took to poisoning them in a box about three feet long, a foot and a half wide, and two feet high, with a two-inch hole bored in the top of each end. He made two such boxes and set one in the barn and one in his shop near his chicken-house. For several nights he put in fresh corn meal. At first they would not notice it; but in a week or so they took it finely; then he mixed some rat-exterminator with it, which they ate, and which must have killed great numbers of them, as they had not bothered him since. He said the lid ought to be locked when the poison is in, for fear of accidents.

He takes old wire cloth, and nails it over a frame that just slips down into two grooves at the fronts of his coops, so his little girl can slip them in at night without his having to look after them, which makes it much cooler for the chickens. As the coops are all set in a row, the little girl is not apt to miss any.

Mother Biddie thought that, as we were getting so old, she would slip away from us. As mistress had not been keeping her in the coop during the day of late, she chose her nest on the ground, and filled it full of eggs before mistress found it. Mistress said, because it was on the ground the eggs would be likely to hatch well, because of the dampness. If people would put fresh earth in the nests when up from the ground, and occasionally dampen them, it would cause eggs to hatch better, as many chicks die while hatching. Mother Biddie said if some careful person would help the little chicks to get out of the shell after it was picked, many chicks might be saved—that is, if the shells did not readily come off; but they must be careful or they will injure the chick. It is the inside lining of the shell, more than the shell itself, that detains the chick. If the shell is cracked and peeled off, and the lining left on, it quickly dries and becomes tough, and the chick can not help itself. This should be carefully peeled off; but if the chicks seem to be hatching all right they had better be left alone.

When mother Biddie was allowed to set this time, mistress set two other hens at the same time. In six days the eggs were tested by taking them all out of the nest after dark; then, taking the eggs one at a time between the thumb and forefinger of the right hand, place them in front of the blaze of the lantern, and shade the light with the other hand. The unfertile eggs will be clear, and the fertile ones will be dark, with an air space at the large end. There will be some you can not determine whether they are fertile or not, and should be tested again on the thirteenth or fourteenth day. The fertile eggs may now all be put under two hens. They will hatch better than if the unfertile ones are left in the nest. As they contain no embryo chick they have no warmth of themselves. If all the eggs are fertile, the heat is greater, which is very important early in the spring.

If more convenient, and the hens are wild, the eggs may be tested in the daytime by holding them in the left hand, or in an egg-tester, and looking toward the sun.

Do not neglect in midsummer to use the insect-powder from the sprayer two or more times while Biddie is sitting, as it is very easy to use it then when she ruffles all her feathers up. **Mrs. L. C. Axtell.**

Roseville, Ill.

Concluded in next issue.]

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

REARING QUEENS ON DOOLITTLE'S PLAN.

We have had pretty fair success this season in having queen-cells drawn out from cell-cups above excluders, as per Doolittle's book on queen-rearing. We find that, first, the colony should be very strong; second, with a frame as shallow as the Simplicity the stories should be three high, confining the queen to the lower story, and placing the prepared cell-cups in the upper story; third, that some colonies will accept and complete these cell-cups, while others, in apparently the same condition, will not. We would advise those who have tried and failed, to try different colonies until they strike the right one, and then they can keep them at it all summer, provided there is honey coming in; or supplying food would likely answer the same purpose. One colony has built the most of our cells this year, sometimes bringing on the second set when the first had been sealed, and, again, working on others while queens were hatching in the nursery just alongside. This has, however, been an exceptionally good season for this kind of work here; for, while there has at no time during the season been any considerable flow of nectar, and consequently very little surplus secured, there has been scarcely a fair day that bees did not gather sufficient nectar to keep up brood-rearing in full blast. Nearly all of our queens thus reared have proven to be of good size, good color, and prolific layers so far as tested.

Bluffton, Mo., Sept. 17. **Miller Bros.**

[Your experience agrees substantially with ours. Some colonies will do fairly well at building cells, while others will seemingly refuse to do the work at all. Those that would build cells did better when they had an extra super between top and bottom story. We do not know whether any one else has observed it; but queens raised *a la* Doolittle were smaller, nor could we succeed in getting large queens from any queen-mother by that plan, although we could produce them of any shade of color desired.]

AN ARTIFICIAL WATERING-PLACE AFTER NATURE'S WAYS.

Observant people will notice that bees, while drinking at a branch or pool, never sip the water, but abstract it from the sand close by, through which, by the way, it has filtered by capillary attraction. Trying always to get close to Nature's ways I built me a watering-place for my bees. A trough of wood 14 inches square and one inch deep was filled up with clean sand, and a three-gallon demijohn filled with water was inverted over it, its mouth resting on a thin block half an inch under the sand. The surrounding sand soon absorbed moisture, and little air-bubbles could be seen, displacing slowly the water in the jug, as the water in the sand exhausts. By scooping out a little hole in the sand, enough water will gather to furnish the poultry. Put syrup in the vessel, and you will have the best outside feeder I know of, for there is no end to the extent of the sand surface you may use, and the sand does not foul, as water or syrup would if given alone. In order to introduce this to the bees I put a piece of comb honey on the sand. After they had carried off the honey they looked about for more, and, discovering the water, have found out that it is a near and good thing. The principle of this watering-device is well known, but I have not heard of the use of sand in this connection. Please give this a trial, if you have not such already in use, for there is nothing new under the sun. To hold up the jug or bottle, bore four holes in the bottom board, and put in pegs, or, better still, nail a half-hoop of tin or strap iron against a wall or board fence, and put the jug mouth down through it. **Arthur T. Goldsborough.**

Washington, D. C., Sept. 1.

UNSCIENTIFIC SCIENCE ABOUT BEES.

Friend Root:—I send you by to-day's mail a marked copy of the Santa Paula *Chronicle*, Sept. 2, containing some of the teachings of Mr. Archer, formerly the king bee-keeper of Santa Barbara County. He retired from the bee-business, and went into horse-doctoring a few years ago. Since coming to Ventura Co. he has collected a few colonies of bees, and made his celebrated "Mammoth" hive. He exhibits at the two last county fairs, and uses the same colony and hive at the district fair held at Los Angeles. Now, you can readily see how Langstroth, Quinby, Cook, and soon yourself, have, after all your study and research, never tumbled on to the racket of changing worker brood to drone by simply turning the combs around. This discovery was reserved for Mr. Archer, the sage and horse-doctor of New Jerusalem, in this county, to give to the world through the *Chronicle*.

Santa Paula, Cal., Sept. 12. **Jno. G. Corey.**

[The following is the extract to which friend Corey refers:]

We were especially interested in the exhibit of bees, and a new bee-hive by J. Archer, of New Jerusalem. Through the glass the honey-makers can be seen at work. We have read much about bees, but Mr. Archer gave us some information we never had before. He says before the young bees hatch out one can tell if a certain cell will produce a queen or a worker by the shape and position of the cell. If a few days before the young bee comes out you turn the cell about, reversing the ends of the cell you change the sex of the bee. He says during the incubation process the workers keep hovering over and about the cells of the young, keeping them warm as assiduously as a hen keeps her eggs warm in the nest before they hatch.

[Some of our older readers will remember Mr. Corey as the one who shares equal honors with Norman Clark in having introduced simultaneously the principle of the cold-blast smoker. The specimen of bee-lore from the *Chronicle* is a good deal like the information we get sometimes from some of the old "know-it-all" veterans. However, it is barely possible the reporter got things badly mixed (as indeed they do sometimes in trying to report facts regarding bees), and therefore Mr. Archer *may* be innocent of such a gross perversion of facts. Whichever way it may be, it is a piece of nonsense that we do not desire to go the rounds of the press unrefuted.]

HOW BEES SEND OUT SCOUTS PREPARATORY TO SWARMING.

I had my hives all placed on stands in rows, three rows, five in a row, but only two colonies of bees. They had all either empty frames or frames with foundation in them. My bees were Italians, well marked. May 25th there were quite a number of black bees flying around my hives. Next morning more came and kept at a certain hive, flying in and out. About 10 A.M. they went away; but about 11 there was a roar in the air, and, behold, a swarm of bees tearing through the orchard and piling into that particular hive. This scene was enacted in all four times – May 26, 31, and June 12, 21. Every time it was the same thing — first a few strange bees around *all* the hives; then more bees around *one;* next, no bees for a half or a whole hour; then the roar of the swarm through the woods. It was so regular that, on June 21st, I had visitors, and told them to wait, as I was going to get a swarm of bees in a very short time, and, sure enough, within one hour they were there and at work. If this is not proof enough that bees send out scouts, I do not know what more is required; besides, my bees are Italians, and the new comers in every case were blacks.

Adrian J. Hesse.

Bayshore, Long Island, Sept. 13.

HONEY FROM TANWEED.

Prof. Cook:—If it is not asking too much, will you please give me the botanical name of the plant, sections of root and branch of which I send you? On cultivated ground it blossoms rarely, though it seems to thrive in every other way; and when once established it is almost impossible to exterminate it. Single roots are often found 30 ft. in length, seldom going deeper in the soil than 6 inches. At intervals of two or three feet, each root sends up an independent plant. In swampy land covered with a few inches of water it blossoms profusely and yields a fair flow of honey nearly every year, from the last of July to the middle of September. The honey is very light amber, and on the market it is mistaken for white clover. It is rich, and finely flavored. The local name given to the plant here is tanweed. It has been used quite successfully in the preparation of leather.

I am harvesting a heavy crop of beautiful honey this season, entirely from this source. I wish to put it on the market branded with its own name, and, if possible, establish a reputation for it under true colors. F. M. Crane.

Little Sioux, Ia., Sept. 6.

[Prof. Cook replies:]

I inclose Mr. Crane's letter, as it is of no small importance to get these new honey plants recorded. This proves to be another of the polygonums, or buckwheat family, and so is related to heartsease, smartweed, etc. This is *Polygonium Muhlenbergii* The flower looks much like that of smartweed, and heartsease in form and color; but the leaves are much coarser and larger. We see from Mr. Crane's letter that this is a very fine honey-plant. The honey, like that from the willow-herb, is light-colored, which is not usually true of honey secured from autumn flowers. In a recent trip to Northern Michigan, both sides of the straits, and through all the Northern Peninsula, I saw acres of willow-herb in bloom. The wild bees were swarming on it; but there was a great scarcity of honey-bees. I did not see one north of the Straits of Mackinac. A. J. Cook.

Agricultural College, Mich., Sept. 10.

TWO TEXAS APIARIES; DIFFERENCE IN HONEY CROPS.

Mr. Root:—In answer to my advertisement last winter I employed J. P. Watt, of Garnett, Kansas, as apiarist, and turned over to him two apiaries, one located in a valley near Little River, containing 18 colonies, and Rattlesnake apiary, on Pond Creek, of 107 colonies. From the Cameron apiary Mr. Watt sold 100 sections, partly filled, and reported that thieves had gone through three colonies. From Rattlesnake apiary he extracted about 935 lbs. and about that amount in supers ready for the extractor, which will wind up the season with fewer colonies than he opened with last spring. I never failed to get a paying crop from Rattlesnake apiary before. I also employed Frank Morton, a novice in bee culture, and a native of Texas. I gave him charge of Little River apiary, consisting of 96 colonies, located 12 miles southwest of Cameron, and similarly located as Rattlesnake apiary, on a valley with a wide bottom, and commonly known in the Southern States as swamp. On the south is a high rolling mesquite prairie; on the north a wide bottom. The two apiaries are about 26 miles apart, and almost identically located, with a little more chaparral and cactus on Pond Creek than on Little River. The Little River apiary has this advantage, if advantage at all (which I doubt): an abundance of live oak along the breaks of the river about one mile from the apiary. Morton increased Little River apiary from 96 to 104 colonies, and has extracted 5500 lbs., and 1100 lbs. in supers ready for the extractor and a honey-flow at the present writing. Rain has fallen in the locality of each apiary about the same. Will some of the Texas bee-keepers account for the difference?

I have known my Little River apiarist from a boy, and believe him to be truthful. He makes the following unreasonable statement: He says that he extracted from one colony, on July 1st, of three stories and eighteen frames, 121 lbs. of honey, and reduced it to a two-story. July 10th he extracted 55 lbs. August 10th he extracted from 9 frames 55 lbs. Total, 231 lbs. He also says that he will get another extracting. I wish to know, and I hope the bee-keepers of Texas will not all answer at once, or before a fair test—can a three-story hive (a hive with two supers) support more bees and supply more honey than a two-story hive, and about how much more? I have been a continual subscriber to Gleanings for the last 11 years; and from its teachings, and from the A B C of Bee Culture, I have been able to produce tons of honey. Long may it live. E. Y. Terral.

Cameron, Tex., Sept. 8.

[A three-story hive, if it is proportionately populous in bees, will produce more honey, other things being equal, than a two-story colony. The former must, of course, have a good prolific queen, preferably nor over two years old.]

A BEE-KEEPER WHO SECURED A LARGE CROP.

If you will put yourself back to the time when you were at our convention you will remember me as the last one that came, having come all day long through mud and mire to see the editor of Gleanings. Well, as I said then, I had just requeened my apiary from an imported mother, and here is the result: I increasen from 180 to 250; shipped to Chicago 350 60-lb. cans; sold around here 50 60-lb. cans; have on hand 34 60-lb. cans. Shipped to Chicago, 370 lbs. of wax; on hand, 300 lbs. Hives are all full, and I may get from 50 to 100 cans more this fall. John Nippert.

Phœnix, Ariz., Aug. 27.

THE HOFFMAN VERSUS THE SIMPLICITY FRAME.

I want to say a good word for the Hoffman frame. I have a few Simplicity hives with thin-top-bar frames, and a few Dovetailed hives with Hoffman frames. I mixed the frames a good deal; and in hives where there were some of each, the Simplicity frames would be covered with burr-combs, while the others were perfectly clean on top. J. T. Shackelford.

Napton, Mo., Sept. 12.

[Your experience is but that of hundreds of others which we have seen. The non-burr-comb frames have come to stay.]

THE STINGING-BUG.

Mr. Chas. Blackburn, Lamont, Ia., sends me several specimens of the stinging bug, *Phymata erosa*. See my "Bee-keepers' Guide," for description and eight illustrations, showing its strange anatomy. They have been quite common here this year. They hide in flowers, especially goldenrod; and when the bee comes for pollen or nectar it finds it is taken in, as the bug grasps it with its jawlike front legs, and then spears it with its very sharp beak. This last is so strong and sharp that the little bug can hurt us not a little; hence the name, stinging-bug. I do not think they usually do very much harm; but when so numerous as Mr. B. finds them—fifty on one flower—they will destroy large numbers of bees.

Bees are now gathering rapidly from goldenrod. A. J. COOK.

Agricultural College, Mich.

THE BEE-INDUSTRY IN UTAH.

I have been seven years a bee-keeper, but this is the first time that I have attempted to write to any of our bee-journals. I wish to express many thanks to you, and to give yourself and Prof. Cook the credit which I think is due you for the grand send-off which you helped to give the bee-industry in Utah last winter. We have kept the ball rolling, and the interest is still growing. We have organized a territorial and several county associations. A number of meetings have been held, making bee-men more acquainted with each other. Some good has been accomplished, which may produce greater results in the future.

THE CAUSE OF SWARMING.

In GLEANINGS, p. 613, Dr. Miller asks what is the cause of swarming. While there may be several causes, I think the principal one is overcrowding, or lack of room in the hive. I work my bees on the dividing plan, and they do not swarm. I have not had a swarm come out in two years; in fact, when I do not neglect them they don't swarm at all. E. S. LEVESY.

Salt Lake City, Utah, Sept. 8, 1892.

DRINKING COPIOUSLY AFTER VIOLENT EXERCISE.

Friend Root:—I have just read GLEANINGS for Sept. 1st. Please don't drink so much *cold* spring water. Warm it a little, and then drink all you want. When your liver gets to working as it should, you won't look on the dark side of things so easily. A well-regulated liver leads one to see every thing in its best light. An old doctor used to say, that the liver is the "root of all evil." I guess bilious people think so. Don't you? F. A. BLAKE.

Rochdale, Mass., Sept. 5.

[Thank you, my good friend, for your timely caution and suggestions. I can not discover that drinking great quantities of water while riding the wheel has ever done me any harm. But perhaps I should add that I rarely drink even so much as a teacupful *at one time*. Day before yesterday Ernest and I went on our wheels about nine miles to a mission Sunday-school. We made the distance in a little more than an hour. Before going into the school I expressed a wish for some water. He objected; but as I was at once called upon to speak I asked for a glass of water. A boy soon brought a pretty good-sized goblet full. I drank it all by drinking four times, three or four minutes elapsing between the times of drinking, and I just felt good and happy. My experience is, that water taken in this way never does *me* any harm. While riding on my wheel continuously I drink great quantities by taking, say, half a teacupful at a time. May be I drink perhaps a quart in this way; and if the effect of this is to wash out and cleanse out the liver, I am quite ready to accept your explanation. I do not care for *very* cold water; but that from our soft-water springs has generally seemed about right.]

RUNNING UP PRICES ON HONEY.

Advices yesterday are that commission men were buying all honey available, for the purpose of raising prices to 25c retail. I have very little trouble in selling at this price for comb, and $1.75 per gallon (12 lbs.) for extracted, to consumers; but I am producing *thoroughly ripened*, best quality at this price. This spring, while transferring a box hive I had occasion to take out several pounds of unripened honey. I ripened it in tin pans exposed to the sun until it was thick, and sold half a gallon to a neighbor. I did not like it, neither did mother, and the neighbor complained of its having a rank flavor. It was from white clover. I afterward sold him five gallons of thoroughly ripened honey, and they were delighted with it, for they ate it up a month ago.

GEO. E. FRADENBURG.

Kansas City, Mo., Sept. 16.

[We must confess that we have seen nothing in the papers to the effect that commission men were trying trying to make "a corner" on honey. If true, it is good news, because honey is so scarce this year that prices ought to rule higher than last year.]

REPORT FROM O. M. BLANTON.

The cold spring, rainy summer, and overflow, cut the honey crop of Arkansas short 40 per cent. On the Mississippi side we had no overflow, the 300 miles of levees remaining intact, and our shortage of crop will be about 25 per cent. If I can get time I will try to write you up the honey season and incidents of the overflow.

I don't use tobacco, and I long ago quit any beverage that has alcohol in it whatsoever, and not to win your smoker, either, but solely for the good of the constitution.

O. M. BLANTON.

Greenville, Miss., Sept. 1.

HOW TO TEST SILVER IN ORE.

Tell our Missouri tin and silver miner that the following blow-pipe analysis will answer his purposes: Pulverize in a morter 8 oz. of ore to a fine powder; place it in a glass or porcelain vessel; cover it with C. P. nitric acid; keep away from its fumes and let it stand an hour, or over a night is better; then dilute with one gallon soft water; add 2 oz. common salt. If you have any silver in your ore, this water, on the addition of the salt, will at once become milky, and finally settle on the bottom as clabbered milk. Pour off the water and wash this residue until neutral. Place this curdy mass in a glass vessel again; cover well with C. P. muriatic acid; place in the acid also a strip of zinc 1x3 in., which will efferversce as it is dissolved, and a gray precipitate will be found on the bottom. Collect this in a small cavity of soft charcoal; add an equal amount of powdered borax as a flux; now with your alcohol-lamp and blow-pipe direct the flame on the mass for a short time, and, if silver exists, it will appear in little shot form, dancing about like fairies at the bottom. If tin exists it will be in the residue as putty powder. J. P. MURDOCK.

Oxford, Fla.

A POOR SEASON, BUT A GOOD FALL FLOW.

This has been one of the poorest honey seasons that I ever saw in this locality. I had 1100 lbs. surplus from 50 colonies, all of which is of a fine quality. The bees have been getting enough honey from goldenrod to keep up brood-rearing at a lively rate. At present they are filling their combs with honey from the asters; and if they have a few more warm days they will have enough to winter on.

Dilworthtown, Pa. H. P. FAUCETT.

By all means let us have a union as spoken of by Mr. McIntyre. If it had such an effect on the syrup-trade, why would it not have a similar one on honey? You may count me one to help. O. H. HYATT.

Shenandoah, Ia., Aug. 22.

A POSSIBLE SOLUTION: MILKWEED.

I think the bees that Wm. Miller speaks of as trying to carry each other off, on page 622, were fastened together with milkweed pollen.

New Hampton, N. Y. E. E. HOWELL.

HIGH-PRESSURE GARDENING.

BY A. I. ROOT.

PEAS IN THE FALL.

All along during the spring months I kept planting peas without getting enough of a crop to pay for seed and picking, even though we got high prices (none sold at less than 10 cents a quart) for them. Well, although I never succeeded very well in getting peas in the fall, I kept putting in seed of the American Wonder clear up into August; and during the whole of September we have been having the nicest American Wonder peas we ever had in the world. I suppose it was owing to the many cool nights, with almost a frost several times. For a long while we disposed of all we could pick, at 10 cents a quart; but finally we had to come down to 8 cents, and finally the bulk of the crop went for 5. A. I. R.

THE MAN-WEIGHT CULTIVATOR.

Mr. Root:—Do you find the Man-weight cultivator to be what the manufacturer claims for it? I bought one of the double-wheeled ones, and it will not stand the work where there are stones. I find the cast parts are very brittle, and the screws that are intended to hold the hoes are entirely too light, and break before I can get them tight enough to hold. I wrote the Everitt Co., stating that I thought they ought to make the machine good or else refund my money. They did not answer me.

Our bees have made some surplus honey from buckwheat. The honey crop in this vicinity will be a light one. P. SUTTON.

Exeter, Pa., Sept. 7.

[My experience has been quite like yours in regard to the cultivator; but the Everitt people have replaced the weak parts of my original machine. It now does fairly well where the soil is sufficiently mellow, and free from stones, etc. Their claims in regard to it, however, are greatly exaggerated. As there have been quite a number of complaints, to the effect that they do not answer letters, I think it is no more than fair that the public be notified.]

A STRAWBERRY REPORT, AND SOME VALUABLE SUGGESTIONS.

The strawberry crop here was about one-fourth of a good crop. Bubach did nothing. What few berries there were, rotted before they ripened. Warfield and Crescent were the best. I do not think it was because the blossoms were not fertilized enough, because beds that had the fewest plants that have the perfect blossoms had the most and best berries.

On the bed I set out this spring I picked off all perfect blossoms and let the others blossom, thinking they would not have any berries on; but if I had taken up all of my Bubachs and set them out I should have had an immense crop of fine berries. Now, what do you think of having the perfect-blossoming kind to make the imperfect bear?

In the spring of 1891 I bought 250 Warfield plants, and saved only 35 of them. From them and their increase I picked 65 quarts of berries, besides selling a good many plants.

I have a hotbed that I heat with a stove. The wood I use is half-rotten stumps that I grub out, which would not be of any use if not used in this way. It is 4½x24 feet; from this I sold $37 worth of plants.

I had some clear sand and manure that the hens had mixed together, and thought I would try some of it for transplanting in; and, how the plants did grow! They grew more than twice as fast as they did in the well-enriched garden soil I was using.

I shall use sand and manure mixed together entirely next year. I let the hens do the mixing, as they can do it better than I could.

Brodhead, Wis. P. H. FELLOWS.

[Friend F., perhaps we may remind you that many of the berries classed with the imperfect varieties produce some perfect blossoms; and the Warfield has at times shown so many as to be almost worthy of being called a perfect-blossoming variety. Your plan of getting a rich compost for plant-beds is tiptop; and by the use of the sand you kill two birds with one stone—you keep your poultry clean, tidy, and healthy, and have one of the best fertilizers made and mixed by the hens. They can be easily induced to scratch and mix the dirt up cheaper than anybody can do it with a rake. Some of us have learned this to our sorrow.]

MULCHING AND WATERING STRAWBERRY-PLANTS.

I would say that I was well pleased with the strawberry book you sent me; but I would advise friend Terry to revise it some; for, if I had followed directions closely I should undoubtedly have lost all the plants you sent me. On page 27 he says, "Do no watering or covering," so I tried about ten plants according to directions—"no watering," and lost every one of them; the rest that I watered every evening are all growing and doing finely. I suppose he intends this for spring planting only; if he does, he should say so. G. J. STURM.

Mount Erie, Ill., Sept. 12.

[Thank you, friend S. Very likely you are quite right about it. Friend Terry, you know, practices spring planting exclusively. In my directions for fall planting with the transplanting-tubes, you may remember that I advised quite heavy watering.]

WINDMILLS FOR ELEVATING WATER FOR IRRIGATION.

Friend Root:—I am gardening two acres of ground, and have lost two crops of celery on account of the drouth, besides other crops that were short on the same account. My garden lies on the banks of a river, and the water must be raised 24 feet, so that it will run on the highest ground. What sized windmill would I need? also, what sized tank will be needed to hold a surplus, in case the wind does not blow for a day or two. I am not able to run any risk in experiments, so I thought I would come to you for advice, which you might give through

GLEANINGS, and may be help others as well as me. We have not had any rain since the fore part of July, and every thing is dried up, or nearly so. F. W. MOATS.

Brunersburg, O., Sept. 6.

[Friend M., yours is a problem that is coming up now a great many times. If you depend on wind you will need a very large reservoir to hold the supply when the wind does not blow; and even for your two acres I would suggest a tank holding from 1000 to 2000 barrels. Now, if there is always running water in that river I would suggest, instead of a windmill, a tide water-wheel. This would always be available, and only a very small reservoir, or none at all, would be needed. I have seen such water-wheels for elevating water; but I do not think that I ever heard of their being offered for sale.]

PREVENTING WASH ON THE HILLSIDES, ETC.

Mr. Root:—On page 704, Sept. 15th, you have given a nice picture of a land-leveler and two nice rolling hills nicely laid out to drain the water by circles; but you have made one little mistake, and you may as well have it *right* as not, while you are at it. Remember, there never were two hills unless there was a hollow or depression between them; and down these sags, or hollows, is where the water should run. But if there is not *enough* of these hollows running up the hill to carry off the water without leading it, say, over two hundred yards, each way from highest point, as you indicate, then you may and *should* run those straight ditches up the hill; but not *all* of them entirely up to the top, as one or two are enough to go *all* the way up—say one on each side. J. W. DAY.

Crystal Springs, Miss., Sept. 24.

[Thanks again, friend Day. Since you mention it, I do remember that your waste water was finally delivered into the natural water-course, or gully, between the hills, but I did not think to mention it. On our ground, where we have been doing the work it is on a hill so large that we have, in place of a hill, only sloping ground; and wherever there is a depression I have found it convenient to locate these waste-water ditches straight down the hill; neither did I intend, in our illustrations, that these waste ditches should *all* go to the summit of the hill. The idea and plan of working is somewhat complicated at best, and the diagram which you refer to was more to give a general idea of the work to be done than to show just *how* it should be done in practice. I suppose *none* of the up-and-down ditches need run clear to the summit of the hill. During the tremendous rains of the past season, however, a large quantity of water would accumulate on a very small area, even on a hilltop.]

CORRECTED AND LEFT BEHIND BY ONE OF THE WOMEN-FOLKS IN THE MATTER OF ONION CULTURE.

I was surprised to read in GLEANINGS, Sept. 1, that the Egyptian onion did not produce bulbs with you. I sent for a quart of your Egyptian onion-sets last fall, and planted them in poor sandy ground, covering them with rotten buckwheat straw which was left on in the spring—no other fertilizer but the water I had to carry out of the stable after a hard rain, which I put between the rows. They will average the size of turkey-eggs. The strip of paper just meets around one of the largest after the outside was peeled off.

Lochiel, Wis. MRS. MELA HALL.

[Well, my good friend, I am rejoiced to find that I do not even *yet* know all about the Egyptian onion. The strip of paper you send us is just 8 inches long. We have succeeded some seasons in getting tolerable bulbs from the Egyptian onions when given plenty of room on very rich ground; but we have never yet succeeded in getting any so large as yours. We shall have to change or modify our description of the Egyptian.]

GETTING ONION-SETS TO STAND WINTER WHEN PLANTED IN THE FALL.

Friend Root:—Perhaps my experience in wintering over onion-sets may be of a little benefit. I have been raising Silver King onions for the past four years. They were a perfect success three years, and one crop was a complete failure. I sow the seed early in the spring, quite thickly for the sets, and I do not set them out in the fall until about two weeks before the ground freezes. The object is, to have them get thoroughly rooted, and have very little top before winter. One year I set in September, and lost the crop. Mulching is of no benefit on my soil—a sandy loam. I shall try the Pearl onion this fall, as this class of onions brings double the price of any other in the market.

EUGENE DAVIS.

Grand Rapids, Mich., Aug. 24, 1892.

[Many thanks, friend Davis. In order to test this matter, last season we planted the American Pearl sets in the middle or early part of September, then some more two weeks later, and so on until only a short time before the ground froze up. Those planted earliest did altogether the best. They took root and grew, and seemed to go down into the ground far enough to stand the frost. We are very glad indeed to get items of experience from the originator of the Grand Rapids lettuce, now so well and widely known almost over the whole world.]

STEAM HOT-BEDS.

We are putting in 15,000 feet of double-thick glass this year for cut-flower growing. That makes my plant 36,000 feet. We expect to heat one-fourth acre of hotbed on A. I. Root's plan of steam. GEO. M. KELLOGG.

Pleasant Hill, Mo.

NOTES OF TRAVEL

FROM A. I. ROOT.

TEMPE, ARIZONA.

When we arrived at the station, the principal object that took my attention was an Indian pacing up and down the platform, with a tuft of feathers on his head, like the pictures we see in the geographies and other books—a veritable painted and feather-decked Indian. I confess that I looked up to him with considerable respect. He was quite a good-sized, tall, well-developed man, and I concluded that he must be a chief or something of that sort, as he, with a sort of indifferent air, seemed to look down upon the rest of mankind who hadn't any nice feathers like his own. When I began to inquire of my brother and his family about this "big Injun" and his feathers, I noticed that they seemed to smile among themselves at my exalted conception of the "red man of the forest;" but as we did not think alike, the subject was dropped. But they smiled in a sort of self-complacent way that rather vexed me just a trifle; but, with very pleasant good nature, they told me to keep on studying the habits of these dusky friends of mine. Well, about the first thing I saw when I looked outdoors, after I had begun to feel at home, was this same tuft of feathers bobbing about over a pile of garbage that had been dumped out in one of the alleys of Tempe. He was poking over the trash, thinking he might find something to eat, or pick up some broken dishes, or something of the sort, to carry home. I was astonished. My hero of the feathers had taken a sad tumble. Afterward I saw other Indians picking up dirty, nasty feathers from dust-heaps in order to stick them in their hair in a like manner. These Indians are human beings; they are God's children, like ourselves; but what a difference education and surroundings make! If a white man should fix up his hair in that way, and deck himself with feathers, and then parade the streets in order to attract attention, we would decide at once that he was stark mad —downright crazy, and very fit for the asylum. But these Indians are not crazy at all. It is only because they look at things in a different way. Some of them can chop wood, and are quite expert with an ax; but they do no regular work. In fact, they rarely work at all unless they take a fancy to a special dress or some extra fine feathers. The whole race seems to be in a state of childhood; but yet now and then we have occasionally a character that shows the possibilities that lie dormant and undeveloped under that dusky skin. One might think, when the Indian looks upon the whites, and sees the progress we have made, that they would feel sad and discouraged. From what I can learn, however, it is just the other way. The Indians, both men and women, especially the most ignorant and savage, seem to feel themselves far above us. They even laugh in our faces to think we take so much pains to build houses, put up machinery, and all that, when after all it does not amount to any thing comparatively—a great fuss for little or nothing.

Tempe, like the rest of Arizona, seems to be a sort of enchanted land or new world. Nothing there is as it is here at home, and few things are even like California. Right close to the town—in fact, right in the town—rises one of those abrupt rocky mountains. They call it the Butte (pronounced *bewt*), and the view from it is so striking that some one or more persons are looking off from its summit almost every hour in the day. In fact, the smoke from the city of Phœnix, the capital of the Territory, is plainly visible from the top of this butte. The meanderings of Salt River, as well as the railroad along its shores, are very plain and quite pretty. The houses, the people, the customs of Tempe, are in great part borrowed from the Mexicans and Indians that form a large part of the population. What would you think of a drygoods store, and a tolerably fine one too, for a city of two or three thousand inhabitants, that did not have a window in it anywhere? How do they display their goods? Why, they put them on the shelves as we do, and then open the wide front doors. These front doors are always open, winter and summer, in the daytime. I do not know how they manage when they have a driving rain. Perhaps they turn their customers, loafers and all, out into the street, and then lock up until the rain is over. Irrigating-ditches are everywhere, and the roads and streets are principally laid out to accommodate said ditches. There is no timber nor trees of any sort unless we call the great cacti *trees* — except along these irrigating-ditches; and these are bordered by fine growths of cottonwood. In fact, I never saw cottonwood, nor any other tree or plant, grow with such luxuriance as do these cottonwoods along the ditches. When they want to set out a belt of trees they just chop down a big cottonwood, and cut it up into poles or sticks. Sometimes the sticks are not larger than your finger, nor longer than stovewood; but just stick these into the ground, near water, and they will all grow. Artificial forests are no myth in Arizona, and there seems to be almost no failure. Cottonwoods two or three feet through may be seen along these ditches; and if one wants a shanty or stable for his stock, he sets up poles or crotches to hold the poles. If an irrigating-ditch is anywhere near the poles and crotches they will all grow. In fact, I saw them making cuttings in the month of January from pears, apples, peaches, and apricots, and from all the trees growing in the nurseries, for all I know, and all they had to do to make these cuttings grow was to stick them close up to the irrigating-ditches—so near that the water would soak through and keep them constantly wet. The climate and soil do the rest.

I visited some of the Chinese gardens, but they had nothing that pleased me as well as the garden-stuff that grows here in the East. I do not know whether it is the Chinese or the climate. I am well aware they grow fruits equal or superior to any in the world; but I doubt their being able to grow general garden-stuff equal to ours. As I was there only in the winter time, however, I may be mistaken. A good deal has been said about the wonderful skill of the Chinese in making gardens. I can not quite agree with this. The Chinese never read an agricultural paper. I do not believe they ever look at our seed catalogues, and they know nothing of new varieties. Most of their products are the result of common seed, or seed of common sorts. If a Chinese market-gardener wants some seeds he goes into a seedstore and simply says, "Led ladish." He means by this that he wants seed that will produce *red radishes*. There being no sound of *r* in their language, they use *l* in its place. If he wants to plant some peas he asks for peas; and when the seedsman asks him what kind, he holds his hand over the counter to indicate that he wants peas that grow short. If he wants tall ones he puts his hand up higher. That is all he knows about it—peas that are tall and peas that are short. He never uses any sort of improved implement—no modern cultivators—none of the hand wheel-hoes. Our good friends Posson & Son, who sell our bee-hive material at Portland, Ore., tried in vain to introduce the Planet wheel-hoes and seed-drills among the Chinese. They thought once they had got the thing started; but the Chinamen all combined together, and, through some superstitious fear, or something else, persuaded their comrade to carry back all his new-fangled tools; and, if I remember correctly, their reward for trying to do these benighted heathen a favor ended in getting their ill will; and I presume they verily believe to this day that the white man tried to do them a great and lasting injury. Now, I protest against letting this class of people drive intelligent horticulture out of any community.

Even the water in the wells of Arizona is "on the contrary." Here in the East, if we want a nice drink of water we go for the old oaken bucket, but not so in Arizona. All the water in all the wells that I found on the desert is too warm to drink. If you want it cold, and have no ice, you must let it stand in the open air until it cools off. During the nighttime and in winter it gets to be cool enough to be quite refreshing. In the summer time, however, and during the daytime in winter, they get it cool by the use of the well-known Indian ola—a jar made of porous earthenware, large enough to hold from one up to five and even ten gallons. These water-jars are suspended somewhere in the shade, but where they can catch all the breeze. They are then covered with some coarse cloth, like burlap or bagging. The porous nature of the earthenware permits enough water to slowly seep through to keep the cloth wet; and the evaporation of this water in the breeze makes the contents cool. Wherever I found an ola suspended or standing in the shade, I was always sure to get a nice drink. It took me some time to be convinced that well water there was never cold. One day when out on the desert several miles we came to a ranch where a new comer had just demonstrated that he could raise alfalfa. In order to get *drinking-water* he had dug a well through the sand and gravel, 70 feet deep. I looked down from above and saw the water shining so far below that I felt sure I had finally found a well deep enough so the water would be cool. While I was laboring to pull up a bucketful, the owner and my brother came around. They laughed at my disgust in finding water just warm enough to be fair dishwater; and then the owner took us into the house and gave us some that had cooled off. The porch in front of his house was made of some queer-looking ribs. I first thought it must be some sort of whalebone; but our host explained that they were ribs from the giant cacti. They were about as hard as whalebone, and so stiff and strong, that, although scarcely larger than your two fingers, they held up the roof of a heavy porch.

OURSELVES AND OUR NEIGHBORS.

Unto him that is able to do exceeding abundantly above all that we ask or think, according to the power that worketh in us, unto him be glory in the church by Jesus Curist throughout all ages, world without end. Amen.—EPH. 3:20, 21.

In my talk to-day I wish to call particular attention to the words, "Above all that we ask or think." In my last I did not mention the wheel and the new lease of life it has given me, at all. In fact, I feared I had said a little too much in my talk a month ago, and I thought it best to wait at least a little longer before I added any thing further. Well, about four weeks have passed since I spoke to you those earnest words; and my feeling now, in thinking about that earnest prayer, is expressed in the words I have just quoted—"Above all that we ask or think." The thought is, that, when God does see fit to answer our prayers, or, if you choose, when we have put ourselves in a line with his work and wishes, so that he can answer our prayers, the answer comes, "Above all that we ask or think." You know a great deal is said nowadays about people wearing themselves out by being overworked. Perhaps they do sometimes wear themselves out by overwork; but I am led to believe that it is not so much overwork as it is working in a single line or single channel. If I have interpreted God's answer aright, it is to the effect that we are to exercise not only all our mental powers, but all of our muscles. He intended that we should be rounded out and developed; that we should go out into the world among our "neighbors" and get acquainted with them, instead of settling down to narrow and contracted lines and limits. Since I wrote you I have been taking longer and longer rides out into the country. I have again and again exerted my strength until it seemed as if I had got to the utmost limit. In climbing hills I have had the muscles and bones and joints of my legs ache until it seemed as if I could stand it no longer. Had I not been working for several weeks right along on the line of testing and developing my muscles I should have feared the consequences. Yes, I have panted and blowed, and had my blood heated up to such an extent that I should have feared rupturing a blood-vessel, or something of that sort, had I not known from *experience* that it would not harm me at all. By the way, isn't there a mistake somewhere in this matter of overexertion that we hear so much about? In my own experience there has not been one single failure. After using my muscles and lungs and circulation in the way I have told you, and after perspiring until I was about as wet as if I had been dipped in water, I have *always* experienced this strange phenomenon which wheelmen call "second wind." It is there, and I reach it every time.

One day during this present week I rode 25 miles between seven in the morning and noon. Of course, this is no feat at all for an average wheelman; but it is to me something wonderful to think of for an invalid—or one who was an invalid—a pefect wreck, in fact, as my physician in Portland, Oregon, told me, in the way of nervous exhaustion. This ride of 25 miles was also over the hilliest and roughest roads, perhaps, in our county. Quite a part of it was climbing great hills, and then going down into great valleys, first one and then another. In coming home, some of the worst hills stood before me at just about eleven o'clock. This is the hour of my forenoon nap, as you know, and I felt strongly inclined to stop somewhere and beg the privilege of lying down. I also felt somewhat hungry from my violent exercise. In order to test the thing, however, of which I am writing, I decided to push on. In climbing great hills, for perhaps 15 minutes longer, the muscular exertion was so great that I was literally full of pain. I knew, however, from past experience, that, after reaching a certain point, this would give way, and it did. For the last half-hour, going up and down the hills was simply a pastime, and the enjoyment was some of the keenest I ever knew. Now, this is to me simply wonderful. It is like going through the unexplored regions of Mammoth Cave—yes, ever so much *more* wonderful, because it is exploring storehouses of strength in my own body—a storehouse of *latent* strength, if I may use a chemical term, which I feel astonished every time to find that God has placed there for some good and wise purpose.

Permit me to mention a queer feature of this matter of latent strength. My muscles seem to have become so accustomed to the motion and the exertion of power that they do it almost involuntarily. When I got off once to adjust something about my machine I was so stiff and sore that I could hardly walk. After getting on the wheel again, and taking up the regular motion of the treadles, no pain, inconvenience, nor stiffness was felt at all. The nerve forces seemed to have worn a channel along the line of propelling the wheel. I might almost imagine some *other* power than my own had come in as a reinforcement. Doubtless others have gone through a similar experience. But now here is another strange thing: When I got home and sat down to dinner I felt stiff and sore. After dinner it was with great difficulty that I could climb the stairs at all. I tried hard not to let my friends notice it, because they would scold; but I really could not walk without making it appear that I was crippled and used up. I imagine I can hear some of you scolding and protesting. Wait a bit. I knew by experience that this would be gone in two or three hours. About two o'clock I went over to the house and took one of my accustomed naps. When I awoke, the stiffness and soreness were all gone. I walked more easily than usual, and I was full of strength and vim. No reaction followed at all. Of course, I took pains not to catch cold. I was so thoroughly wet through by perspiration—underclothing and all—that I slept inside of a big warm overcoat. Now, this is a strange thing: but I have stranger things yet to tell you. Please look at the text again—"Above all that we ask or think." For many years I have been accustomed to drink coffee three times a day. Mrs. Root has worried a little during the past year because I kept wanting it stronger. I drink so little, however, that I have always thought it could not harm me—seldom more than a half or two-thirds of a cup. When suffering from nervous exhaustion, and feeling as if I could hardly drag one foot after another, my hand would often shake as I reached nervously for the coffee that I knew would give me steadiness and strength for the time being—that is, a feeble sort of strength. How is it now? Since I have been feeling so strong and well, my desire for coffee has, most of the time, gone entirely. I crave milk or pure water. In my most earnest prayers for health, and that it might be made known to me the secrets of health and disease, I never thought for a moment that I could be lifted to a point where I should not crave coffee, beef tea, food, or sleep. Well, for three days past I have entirely omitted my nap just before dinner. I do not need it any more than I need coffee. If it becomes necessary for me to keep on working after my accustomed meal hours, I do it without inconvenience. Isn't this really a fulfillment of the promise in the text—"Above all that we ask or think"?

Once more: Some of you may remember of my telling you that, although I have drank no beer nor ale for about twenty years, the longing for it at times is such that I would give half a dollar for a drink if I could take it with a clear conscience, and if it were not wicked to waste money in that way. Well, this intense craving for drinks slightly alcoholic came usually with nervous exhaustion. For the past month or two, since I have been riding the wheel, I have felt nothing of the kind. I have been around where beer was drank and offered for sale, and I have been surprised to feel that I had no desire for it whatever. Now, isn't there some explanation here right along in this line, for the taste or longing for stimulants? It is a perverted taste, I know; but hasn't this matter of lack of proper exercise something to do with intemperate habits? We stay indoors until we suffer, and then go to the drugstore or physician, in the vain hope that tonics may take the place of exercise, outdoor air, and sunshine.

Now, I am not through yet. There is a great deal more. But I want to digress a little here. I am talking about myself—my own feelings, and taking it for granted that every one else is like me—or, at least, taking it partially for granted. Some of the friends, or, may be, some who are not *specially* friendly, may say that I never was sick at all—I just imagined it, and, under the influence of the fashionable craze for the wheel, I simply took needful exercise. Well, you may have it that way if you like. The doctors here and on the Pacific coast, and everywhere else, said at once that I was a nervous and physical wreck; that I could never be a well and strong man again; that I would have to give up work and business. It is rather rough on the doctors, if I have *not* been sick. Let us now talk about somebody else besides A. I. Root.

Some years ago I became acquainted with a slight and in many respects delicate-looking woman. I do not think she weighed a hundred pounds. Years passed, and somebody told me that she was going about doing washing, and cleaning houses for people, because she wanted to buy a home for herself and children. Mrs. Root and I both wondered how it could be that a woman so slight could do such heavy and fatiguing work. She came to work for us—in fact, she cleaned house, and my wife and I were astonished to find that she was a young tornado for hard work. She did as much, oftentimes as *three* of *some* women. I told her not to waste her strength, for big stout men were near by, and would willingly move the heavy articles of furniture. But she did not care for the men. It took too much time to "go" for them, and they were often in the way, anyhow. After laborious house-cleaning that would use up most ordinary women, she would do a washing, and, in fact, she often did two or three ordinary washings in a day. She was determined to have a home of her own, and to have her children educated, and she has accomplished her desire, and is not worn out nor broken down either. Mrs. Root once asked her how it was possible, or by what miracle this sudden and wonderful change in her life came all at once. The answer she gave with a merry laugh was something as follows, as nearly as I can remember, for it was years ago:

"Why, Mrs. Root, I used to be one of these feeble women who are sending for the doctor, and going to the drugstore for tonics and invigorators, wearing plasters for a weak back, and not able to do their own washing. I finally made up my mind that I was going to have a place of my own where I could live, or die in the attempt. I commenced doing my own washing first; then I astonished the neighbors by proposing to wash for *them*. When all the washing was done I felt so strong and well I thought I should like to clean houses; and then I found out that my aches and pains were all gone. My back got right of itself; and the more work I have to do, the better I feel."

How much does this experience differ from my own? You may ask whether this woman had been praying. I have talked with her about it, and I think she did *sometimes*—perhaps, however, without a very large amount of faith, and I presume she does not now consider it as any direct answer to prayer. Well, the point I wish to make comes in right here. I have prayed earnestly for days and weeks that God would reveal to me his wishes in this matter of medicine and disease. Many are looking to me for advice; they regard my opinion and counsel worth *something* at least. I begged that God would give me wisdom to advise aright, and I felt as if the answer had come to me in a way that I may with safety say, in regard to this matter, "Thus saith the Lord." I do not mean by this that we should ignore physicians, and, occasionally, medicines; I simply mean to say that God gave us these bodies of ours, expecting us to keep them well and strong by using our muscles as well as our brains, and not that he intended or now wishes us to get energy and strength through tea and coffee, alcoholic tonics, quinine, or any thing of the sort. Let me give you one more illustration:

A friend of mine told me a short time ago that he had done no outdoor work in the open air for over seven years. He has worked in the factory when able; but poor health, and a complication of diseases, have kept him for all these seven years under the doctor's care, and have prevented him from working, except at intervals. Our business has been dull this past season, as you know, and there was really nothing for him to do. He remained at home, thinking himself unable to do any outside work. Finally he felt as if he could stand it no longer—that is, until he felt as if he *must* do something for a living. The only opening we had for him was in the lumber-yard, handling heavy plank. He decided to try it. In a week his color had improved, and he seemed to be fleshing up. In a month he had become tanned by the sun. His muscles had developed and rounded out, and you would hardly know he was the same man. To-day he is shoveling dirt and gets the pay of a good stout man, and, in fact, I should pronounce him to be a good stout man for almost any kind of business. He may not agree with me, and perhaps he does not himself feel that severe outdoor work has been the means of building him up; but I feel pretty sure that he has been taking no medicine at all lately. I think he found by experience in the lumber-yard, just what I have found out by my experience on the wheel. Of course, I have no right to lay down rules for all sorts of people, and apply them to all sorts of disease; but I think that, if you look about you, you can find instances just like the ones I have given. One may be worn out and used up by a certain line of work—especially work that does not take him into the open air and give full swing to all his muscles and joints.

Now, let us not be in too great haste in condemning doctors and medicine. In the hand of a skillful and intelligent physician, medicine may serve as wise a purpose as the Paris green and copper sulphate we use to banish the worms and scab from our apples. These remedies, however, are the result of careful experiment, with a definite end in view, and are not at all to be compared with commencing work on Friday or working in the right time of the moon. The world is just now struggling to have science and sense put down superstition and nonsense; and God the Father is not only willing but anxious to help us up through ignorance and superstition into the light of true wisdom: and our veteran teacher Paul was right when he used the words, "Unto him that is able to do exceeding abundantly, above all that we ask or think."

Years ago some of our agricultural journals decided they would no longer accept advertisements of any patent medicines. The *American Agriculturist*, under the administration of Orange Judd, was perhaps the first one to take this stand. "No patent medicines of any kind shall be advertised in these columns, no matter how much money may be offered," was the way they started out. Since then the *Rural New-Yorker*, *Philadelphia Farm Journal*, *The Orange Judd Farmer*, and perhaps a good many other home journals, have taken the same stand. It is a little sad to think that our agricultural periodicals were in advance of our religious and scientific journals in this line. In fact, nearly all of our religious papers seem to think it fair and right to advertise almost any thing, providing the advertisement is *paid* for. I should be glad to add that the *American Agriculturist* still holds out in that line; but only a few months ago I noticed an electrical-belt advertisement occupying the greater part of a page, displayed with great headlines; and the proprietors even offered to send one for thirty days on trial. A good many of you may ask how the proprietors of these things can be willing to send them out on trial if they possess no virtue whatever. My dear friend, people base their faith in such things exactly as they stoutly maintain that Friday is an unlucky day. They have tried it so many times they think there can not be any mistake about it, just as the farmer insists that the moon affects the weather and planting potatoes, etc. You doubtless remember how many years I have insisted that none of the thousand and one remedies for bee-stings had any effect whatever. I am sure I am right, even while I am met at every turn by neighbors who stoutly insist they have tried this, that, and the other, and they *know* it does good. If I am correct, the truth lies right here: As soon as we receive hurt or injury of any kind, nature goes to work at once to remedy the mischief; and we should remember that she usually succeeds. Most of our aches and pains, as well as our bee-stings, are gone in a little while if we just let nature alone. Now, this superstition and blundering come about because somebody takes a remedy and feels better almost immediately, just exactly as would have been the case had no remedy been administered. Many and many a time have my good friends and neighbors insisted on my taking quinine, or some other sort of bitters. Well, if I did not take it (and most of the time I didn't) I was careful to watch and see if I did not get better soon. Sometimes the trouble would disappear in a very short space of time. For instance, I would have neuralgic pains, and my friends would urge quinine, but I did not take a bit; notwithstanding, the next morning I was perfectly well. Had I taken the quinine, I myself would have been ready to declare that it was a wonderful medicine. While traveling in the cars in the South, a lady with whom we had become acquainted insisted so stoutly that Fellows' hypophosphite was just the thing to make me entirely well that she almost persuaded me to have faith. Said she, "Mr. Root, you just get a bottle, and take it; and you will write me a letter of thanks in less than two weeks. Here is my address. Now, be sure you do it, if it makes you well, as I am sure it will." Shortly after I got home one of our Medina doctors mentioned favorably the same remedy. Then another doctor prescribed it for our eldest daughter. The evidence was so strong that I purchased and took several bottles according to directions, and, in fact, I came very near writing to this good friend of mine, thanking her, as she said I would do. But I made up my mind to be very sure that I was right before I pushed ahead. I commenced taking the medicine and studying the case, exactly as our people at the experiment stations kept track of the moon and the weather. After having given the matter a very full and faithful test I became perfectly satisfied that the medicine had nothing to do *whatever* with my bad feelings or good feelings. The price is $1.50 per bottle. At the very time I was taking it I felt sure, from what I know of drugs and chemistry, that the whole expense of these $1.50 bottles was less than 25 cents. I believe patent-medicine venders admit this. They claim, however, that the expense of advertising is so great, that, in order to get a medicine fairly going, they must have these enormous profits. Now, if the advertising were square and honest, it would not be so bad; but what kind of subterfuges do you suppose they resort to? Here is an illustration, right from our own county paper. The heading that I quote comes right along in the reading-matter. The type and every thing else is exactly as local news, and right in among their local news.

WAR ECHOES.

Exciting Experience of Commander ——

One of the Most Popular G. A. R. Veterans in the Country.

A Wonderful Thing, and We Believe it to be True.

You will notice the above seems to be a heading put on by the editor, especially, where he says, "We believe it to be true." The *we* is understood to be the editor. Something remarkable has come within his observation, and he describes the whole transaction to his readers. and that strange miraculous system of cure, and he himself accepts it as true. What do you suppose the whole sensational thing is about? Why, it is a tremendous advertisement for Dr. Green's Nerve and Blood Remedy. Now, please do not think that I mean to criticise particularly the editor of the paper I happen to pick up. You take up almost any home paper in any home in the land, especially the regular county papers, and these puffs for patent medicines are so frequent one hardly knows whether or not the item he undertakes to read is going to turn out only as an advertisement. You may say this is only a joke—that everybody expects it as a matter of course. My good friend, your *nearest neighbor* accepts it as truth, and he pays more money than he can earn in a day for a bottle of this same medicine. May be he buys half a dozen bottles because he gets them cheaper; and thus it goes on until he decides, as I have done, that the medicine probably has no effect whatever. Why, it has got to be such an everyday matter that many of them put them in their papers without ever seeing them or reading them over. I think it is bad; and I do believe the editor who sells his good name and reputation to these medicine makers who have money will repent it sooner or later. In California, many palatial residences were pointed out to me as belonging to millionaires who made their money in selling the very medicines that have been before your eyes in your county paper so often that you have really become tired of seeing the same thing over and over.

GLEANINGS IN
BEE CULTURE
A JOURNAL DEVOTED to BEES AND HONEY AND HOME INTERESTS
Illustrated SEMI-MONTHLY
36 PAGES 7×10
$1.00 PER YEAR

In the sweat of thy face shalt thou eat bread.—GEN. 3: 19.

ONE of the sweetest and nicest of baby girls found her way to the home of the *Bee-keepers' Review*. GLEANINGS offers congratulations.

BEWARE of the Rambler when he pulls out his camera. We show him in another column, so that you may be on the lookout if he should by chance come *your* way.

IT is getting time now for prices on honey to be stiffening up a little. Better figures are usually secured from now on until the holidays than before or later. Watch your chances.

HILDRETH BROS. & SEGELKEN, in the Honey Column, say that the California honey crop is not a failure, as first reported, and that, since July 8, they have purchased twelve carloads of California extracted honey. Good! While it may not have been a failure, yet the crop was very much shorter than usual.

THE following from Prof. Cook, in regard to honey-dew and its analysis, will explain itself:

> Will you ask bee-keepers, through GLEANINGS, to send me samples of honey from honey-dew? I wish all kinds good, bad, and indifferent; from acorns or oak; Missouri and Arkansas, and from plant and bark lice. Will all who have samples express to me three or four pounds at my expense? I don't care when it was collected. I need it for the investigation which we are carrying on.
>
> A. J. COOK.
>
> Agricultural College, Mich., Sept. 17.

WE have just been trying the new Crane hot-blast smoker, as recently illustrated in the *Bee-keepers' Review*. From some tests we have made we are of the opinion that it is superior to any other smoker ever constructed. It has the force of the cold-blast and the volume of the hot-blast very nicely combined. Mr. Crane authorizes us to say that the smoker will not be offered for sale until it has been thoroughly tested by a few competent bee-keepers, and its value fully determined.

THERE seems to be a smaller crop of honey this year than usual—at least, there is not very much offered. We notice from the reports, that consignments are small. Does this mean that the honey crop this season was actually smaller this year, even, than last? By the way, the fall honey crop, judging by the letters we are receiving every day, is unusually large. At our basswood apiary we actually had to give the bees more room because they had crammed almost every available cell with honey and brood. Goldenrod has been out in great profusion, and this is, no doubt, the source whence the honey comes.

NEAT and novel display is one of the important requisites in advertising; and to help our patrons we are always glad to offer suggestions or to submit proofs of advertisements, free of charge. As a general thing, if our customers will allow us to use our own judgment as to display, not cramping us too much in space, we can suit them better than to try to carry out a certain style that they may have in mind. We have a good many advertisers who have been with us for years; and if there are any of these who would like to see a proof of their advertisement reset according to our own ideas of display, we will send it free of charge. An advertisement ought to be changed occasionally, else it becomes worn out and people do not see it.

NEXT to the North American, the Illinois State Bee-keepers' Association, formerly the old Northwestern, is the most important, probably, of any bee-keepers' association in the United States. Since it receives annually an appropriation of $500 from the State government, it is in a position to do effective and important work for the bee-keepers of Illinois. The next meeting promises to be an interesting one, and certainly all bee-keepers of the State, besides those near in Wisconsin and Michigan, should make an effort to attend. The following is an announcement from the secretary:

> The Illinois State Bee-keepers' Association will meet at the Commercial Hotel, Chicago, on Tuesday and Wednesday, Oct. 18th and 19th, 1892. This being the week of the dedication of the World's Fair Buildings, we may expect reduced railroad fare, and consequently a large attendance.
>
> Bradfordton, Ill., Sept. 23. JAS. A. STONE, Sec.

THOSE HOFFMAN FRAMES AND PROPOLIS.

THOSE who have been using the Hoffman frames have doubtless noticed that propolis seems a little worse just before cool weather than at any other time. In pulling apart the frames, the bee-glue acts rather waxy. Some observing this might feel, perhaps, this was only the beginning of troubles; but for their encouragement we may say that new propolis is more sticky or gummy than old. When it becomes a little older it will be less tenacious, and give less trouble in separating the frames. We know, for we have been trying the experiment. If one desires to enjoy immunity from propolis, let him rub the contact edges with grease. But even with the propolis we can not see that the Hoffman frames on the new tin rabbets separate with any more difficulty than the old-fashioned open end or loose frames on wood bearings. Either must be pried up with a screwdriver or knifeblade. Bee-keepers have long since decided that they want their frames sufficiently fast to require prying, so that the colonies may be handled without jarring the frames all together in a heap. If a frame must be pried, why not have it self-spacing?

GREENHOUSES AND GREENHOUSE WORK.

The Ohio Experiment Station, in its Bulletin 43, has given us some of the most valuable information in regard to vegetable-growing in greenhouses, that we ever met anywhere. The different subjects treated are, "Fertilizers in the Greenhouse;" "Sub-irrigation in Greenhouses;" "The Water-bench;" "Crops Suitable for Forcing;" "Calendar of Operations;" "Tomatoes as a Greenhouse Crop;" "Lettuce as a Greenhouse Crop." Chemical fertilizers so far have given no good results whatever. Their experiments with nitrate of soda are just like ours. Whether used in large, small, or medium quantities it is of no benefit whatever to the crop. This Bulletin 43 is sent free to all residents of the State who request it. I do not know on what terms it will be sent out of the State; but every one who is working at all with greenhouses or with sash should have this bulletin.

SECOND WIND—MORE ABOUT IT.

Don't forget to read the text at the head of this deparment, even though it is short and in small print. It has occurred to me of late, that, although the text is a part of the curse pronounced upon Adam and Eve, yet there is a wonderful blessing in it after all. Some of the friends may think that exercise for fifteen or twenty minutes will be enough for half a day in school, or in the office at the desk. But this is a mistake. You must labor out in the open air, and until the sweat drops from your face, or you can not eat bread, nor enjoy life either, as God intended you should enjoy it. Sometimes of late, when hurried with business I have thought that a ride on the wheel for a couple of miles ought to answer; but it does not bring the real blessing at all. It takes at least four or five in my case to bring that delicious second wind, and sometimes it takes ten miles. Did you ever wish you could have back again the keen relish for food that you remember of having in your childhood? Well, you persevere until you reach the second wind, and you will have it. Your bread and butter will be more delicious than any thing you have tasted before, perhaps, in forty years; and a drink of spring water gives you such satisfaction that you must be dull and undemonstrative if you do not break out into exclamations of delight. Every thing that is put on the table is so refreshing and satisfying, that, if you never thought of giving thanks to God before eating your meal, you will think of it now and feel as if it were the thing to do. Don't be discouraged, and give up because you tried once, and this thing I have described did not come to pass. Keep out in the open air; keep testing your breath and muscles; and when the sweat drops from the end of your nose, and runs into your eyes until you can scarcely see, then you will begin to see something in the little text I have quoted, and may be you will think as I do, that, if there is any class that do not know what it is to eat their bread by the sweat of their face, these are the ones to be pitied. May the Lord be praised for this wonderful—not curse, but privilege.

The sweat of the face not only gives physical strength, but spiritual as well. We copy the following from "Hints to Lady Cyclers," from the pen of Rev. F. W. Rider, Pastor of the Central Baptist Church, Boston:

> The bicycle is a great "means of grace." I get up sometimes of a Monday morning, nervous, headachey, and hardly willing to see my best friends. A ten-mile spin on my wheel brings me home in a state of perspiration and bliss; and, after a vigorous rub down in the bath room, I am quite prepared to love my enemies and pray for them that despitefully use me.

KIND WORDS FROM OUR CUSTOMERS.

I shall have to buy considerable honey from some one this year and I must say that I have had more satisfaction in buying it from you than any other dealer I have met with yet. M. H. Tweed.

Pittsburg, Pa., Sept. 6.

I have taken Gleanings for six months, and it has so endeared itself to me that I feel I can't do without it. Inclosed find $1.00 for one year's subscription. The A B C is worth $5.00. I don't see how I could have done without it.

Odin, Mo., Sept. 9. D. B. Thomas.

I have borrowed from a neighbor your book, "What to Do," etc., and it contains so many valuable hints that I want a copy for myself. I am especially pleased with the Christian tone of your book. It does me good. F. A. Hubbard.

Carthage, Mo., Aug. 22.

MORE THAN PLEASED WITH THE COWAN EXTRACTOR.

Cowan extractor received in good shape. I am more than pleased with its execution. I send herewith supplementary order. Forward at once.

Imlay City, Mich., Sept. 2. Wm. Anderson.

THE BINGHAM SMOKER AND THE COGGSHALL BEE-BRUSH.

The goods have come through all O. K. Every thing was in good shape, and I am a happy bee-man thinking of flowers so gay, and hoping that those snow-white sections will be filled with honey. I can't speak too highly of the goods. The Coggshall bee-brush and Bingham smoker are essential accessories to every bee-keeper. J. H. Goe.

Mossy Rock, Wash., Aug. 25.

DR. MILLER AND THE RAMBLER.

Gleanings always comes bright and sweet, full of fresh straws with golden grains from Dr. Miller. Mr. Root, I admire the "Rambles" and "Notes of Travel" very much; but they give me the California fever, and I guess it won't stop till I have been there. Tell the Rambler to kill that skunk that lives under his wax-extractor, before I come to California; but let some of those cotton-tailed rabbits remain alive till I come out there and show him how to cook them. Wm. B. Gehrels.

Biegel, Texas, Aug. 30.

THE BOOK "WHAT TO DO," ETC.

Friend Root: You will pardon me, I hope, if I seem to use a familiarity accorded only to old friends. The truth is, that your book, "What to Do," etc., has been so faithfully read, used, and quoted from since we and our little farm took possession of each other, we feel quite well acquainted with you; and when I earnestly endeavor to thank you for enabling me to put into the hands of my boys a book so practically helpful and so simply and reverently loyal to the great Father of us all, please do not think it the mere customary congratulations. Only eternity can reveal the good you have done. Meantime it will not harm you to know that your book is used and loved. My boys of ten and twelve, in their gardening operations, want to know continually "what Mr. Root says," and they read your book as eagerly as a story. What a blessed occupation tilling the soil is for growing boys! Mine just love it, and I can not be thankful enough that they do. Mrs. M. Slusser.

Downers Grove, Ill., Aug. 15.

5 Per Cent Discount On All Goods

Listed from pages 10 to 30 of our price list, which are ordered between now and Dec. 1st. for next season's use. This does not apply to goods on other pages, except those mentioned. **A special reduction of 20 cents on each two-story chaff hive,** ordered for a limited time. The quantity and early-order discounts to apply also. Special prices quoted on sections in lots of 2000 and upward. Name the quantity and size when you write. We guarantee as good a quality for the price as you can obtain anywhere. Dealers should not fail to write us before making contracts for another season's supply. We offer special inducements.

A. I. ROOT, Medina, Ohio.

Foundation Reduced 3 cts. Per Pound.

SECTIONS I sold at $3.00 now selling at $2.60. Bingham Smokers at cost. Send for Free Price List of every thing needed in the apiary. 6tfdb **M. H. HUNT, Bell Branch, Mich.**

Muth's Honey-Extractor.

Square Glass Honey-Jars,
Tin Buckets, Bee-hives,
Honey-Sections, &c., &c.
Perfection Cold-Blast Smokers.

APPLY TO
CHAS. F. MUTH & SON, Cincinnati, O.

Send 10-ct. stamp for "Practical Hints to Bee-keepers."
Please mention this paper.

TAKE NOTICE!

BEFORE placing your orders for SUPPLIES, write for prices on One-Piece Basswood Sections, Bee-Hives, Shipping-Crates, Frames, Foundation, Smokers, etc. PAGE & KEITH,
14tfdb New London, Wis.

Please mention this paper.

BEE-HIVES, SECTIONS, ETC.

We make the best goods and sell them cheap.
Our Sections are far the best on the market.
Our Works turn out the most goods of any factory in the world.
Our goods are known as the best throughout the United States and Europe.
Write for free, illustrated catalogue and price list.

G. B. LEWIS CO., WATERTOWN, WIS.

IF YOU WANT BEES

That will just "roll" in the honey, try **Moore's Strain of Italians**, the result of 13 years' careful breeding. Reduced prices: Warranted queens, 80c each; 3 for $2.00. Tested, $1.00 each; Select tested, $1.50 each. Safe arrival and satisfaction guaranteed. Those who have never dealt with me I refer to A. I. Root, who has purchased of me, during past 12 years, 582 queens. Circulars free.
J. P. MOORE, Morgan. Pendleton, Co., Ky.
13tfdb Money-order office, Falmouth, Ky.

VANDERVORT COMB-FOUNDATION MILLS.

Send for samples and reduced price list.
1tfd **JNO. VANDERVORT, Laceyville, Pa.**

SAVE MONEY.—Send to J. P. H. Brown, Augusta, Georgia, for his price list of supplies. Hives and foundation at wholesale rates. 4tfdb

---

Bee-Keepers' ✻ Supplies.

We are prepared to furnish bee-keepers with supplies promptly and at lowest rates. Estimates gladly furnished, and correspondence solicited. Our goods are all first-class in quality and workmanship. *Catalogue sent free.* Reference, First National Bank, Sterling, Ill. Address 1-24db

WM. McCUNE & CO.,
Sterling, Illinois.

☞In responding to this advertisement mention GLEANINGS

AUSTRALIA.

Wanted—every bee-keeper in Australia to send for my large illustrated catalogue of bee-keepers' supplies, American queens, etc. Post free.
18-23db **H. L. JONES, Goodna, Queensland.**

FALL Eggs and Plants, Fowls, Poultry-books and Papers; finely ill. circular free. Address GEER BROS., St. Marys, Mo.,
14tfdb Or, H. B. GEER, Nashville, Tenn.

SECTIONS.

$2.50 to $3.50 per M. Bee-Hives and Fixtures cheap. **NOVELTY CO.,**
6tfdb **Rock Falls, Illinois**

☞In responding to this advertisement mention GLEANINGS.

VIOLINS MURRAY & HEISS. CLEVELAND · OHIO ·
MUSICAL GOODS OF ALL KINDS. **GUITARS** CATALOGUE FREE
MANDOLINS

☞In responding to this advertisement mention GLEANINGS

QUEENS! A few fine queens of 5-banded variety, 75 cents each; three, $2.00.

J. F. MICHAEL, German, Darke Co., Ohio.

Harvest Excursion

WILL BE RUN ON

October 25th

TO THE

Pecos Valley

The Fruit Belt of New Mexico.

Tickets may be bought at any important railway station, in the Northern or Eastern States, to

EDDY, NEW MEXICO,

and return—**good twenty days**—at

One Fare for the Round Trip.

Don't miss this opportunity to see the **richest** and **most fertile valley**, and the most complete and elaborate system of Irrigating Canals in the United States. For particulars, address

G. O. SHIELDS, Eddy, New Mexico

Please mention this paper.

800 **FERRETS,** and a fine lot of **Scotch Collie Pups** for sale. Price list free. Address **N. A. KNAPP, Rochester, Lorain Co., Ohio.** 18tfdb

☞In responding to this advertisement mention GLEANINGS.

75c. Golden Queens by Return Mail. 75c.

For beauty and business. Safe arrival and satisfaction guaranteed. This is a money-order office.

J. B. CASE, Port Orange, Vol. Co., Fla.

☞In responding to this advertisement mention GLEANINGS

PATENT WIRED COMB FOUNDATION

HAS NO SAG IN BROOD-FRAMES.

THIN FLAT - BOTTOM FOUNDATION

Has No Fish-bone in Surplus Honey.

Being the cleanest is usually worked the quickest of any Foundation made.

J. VAN DEUSEN & SONS,

Sole Manufacturers. 5tfd

Sprout Brook, Montgomery Co., N. Y.

Please mention this paper.

Barnes' Foot-Power Machinery.

Read what J. I. PARENT, of CHARLTON, N. Y., says—"We cut with one of your Combined Machines last winter 50 chaff hives with 7-inch cap, 100 honey-racks, 500 broad frames, 2,000 honey-boxes, and a great deal of other work. This winter we have doubled the amount of bee-hives, etc., to make, and we expect to do it all with this saw. It will do all you say it will." Catalogue and Price List free. Address W. F. & JOHN BARNES, 545 Ruby St., Rockford, Ill.

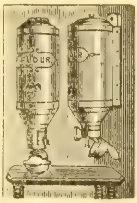
When more convenient, orders for Barnes' Foot-Power Machinery may be sent to me. A. I. ROOT. 23tfd

SPECIAL NOTICES.

HONEY MARKET.

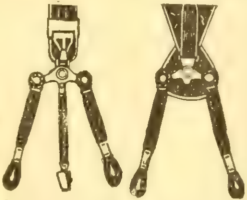
We have been having a brisk demand for honey, especially comb. We are not able to keep much of this on hand, as orders reach us about as fast as the honey shipments. We should be pleased to correspond with those who have not sold yet. We have paid the producer net, so far, from 15 to 16 cts. for choice white, delivered here. We have been selling at 17 to 18. Good extracted honey is in demand, and we have a light supply.

TYLER FLOUR-RECEPTACLE.



We still have some of these very useful household articles on hand, which we can furnish at $2.50 each for the size holding 50 lbs. of flour, or $2.00 for the 25-lb. size. A crate of 6 of the 50-lb. size for $12.00. We use these receptacles in our homes, and find them very handy. The cut shows how they are used. We hang them on the pantry wall, right over one end of the shelf, just high enough to allow a pan to be placed under to catch the flour as you turn the sifter crank. You thus get the flour as you want it, already sifted, and without getting it on your sleeve, as is often the case when you dip it from a barrel or bin.

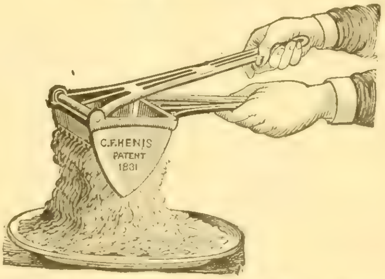
FOSTER SUSPENDERS.



The Foster is one of the best suspenders made, and wear very easy on the shoulders. These, as the cut shows, have eveners to make the strain alike on each button. They are good web, all white or light drab, and nickel trimmed, with drawer lift. The ends button on to the evener the same as to the pants button.

Mr. H. E. Felger, of Geneseo, Ill., after ordering two pair, adds, "I think this is my fourth or fifth order for these suspenders, and I certainly think they are the best in the market." We have them only in white and light drab, with cotton ends. Price 35c; with silk ends, 50c. Postage extra, 5c a pair.

HENIS' FRUIT-PRESS.



These are a very handy and useful instrument, not only for mashing potatoes, as shown in the cut, but especially for making fruit jams and jells. It is a press and strainer combined. It is likewise an excellent thing for pressing wax out of old combs when you melt them up. We have sold a great many of these in the past, but the manufacturers advanced the price, and they have not been selling so rapidly since. We laid in a good stock when the price was advancing, and the prices we have been offering are as low as the wholesale prices made by the manufacturer. To make them move off, now that they should be in demand, we offer the following prices: 30 cts. each. By mail, 50 cts.; 1 doz., by freight or express, $3.00; or a box of 3 doz. for $8.25.

EXTRA EARLY AMERICAN PEARL ONION-SETS.

We have just succeeded in obtaining another barrel, and expect to be able to fill orders promptly. For prices, see our last issue.

COTTON CLOTH FOR COLD FRAMES.

Just common white unbleached cotton cloth, such as you get at your nearest drygoods store, is all that is needed. It should be rather stout and heavy, however, (the kind known as 8 oz.) especially if you want to cover your cold-frames with straw or leaves, as directed on page 9 of the tomato book The kind we use is Utica sheeting, nine-fourths wide (78 in., to be exact), and it is worth just now in the market about 25c per yard for a full piece of about 40 yards. If you do not find it near your home to suit you, we can furnish it at the above figure.

A NEW BOOK ON TOMATO CULTURE, PLANT GROWING, AND HIGH-PRESSURE GARDENING IN GENERAL.

The tomato-book is finally all complete, ready to mail to applicants. Price 35c; by mail, postpaid, 40. To get your tomatoes started, more or less gardening under glass must be done, as you are probably well aware. Well, when you can manage the tomato under glass, you are ready to manage almost any other vegetable crop; therefore we regard the tomato book as one of the most valuable if not *the* most valuable of any work on raising plants and vegetables that require protection from the frost; and whether the protection is to be in the fall of the year, or the middle of the winter, or in the spring months, you will find the tomato book full of the latest and most modern appliances for giving protection at the smallest expense. Of course, a part of it has already appeared in GLEANINGS; but probably considerably more than half will be found new to our readers.

PLANTING TO BE DONE IN OCTOBER.

Asparagus-roots, Henderson's Palmetto, two years old last spring, 10 for 10c; 75c per 100; $6 00 per 1000. If wanted by mail you will need to add 2c extra per root, they are so strong and heavy. Winter, or Egyptian onion-sets; for prices, see last issue. Rhubarb, or pie-plant, either Victoria or Linnæus; strong plants, from 10 to 25c; but these are so heavy they will have to be sent by express or freight. "Little fellers," from seed sown last spring, 5c each; 35c for 10, or $2.00 per 100. These can be sent by mail for 3c each additional. Horseradish-roots, 10c for 25; 25c per 100, or $2.00 per 1000. If wanted by mail, add 5c for 10, or 25c per 100; also strawberry-plants to those who have tried October planting and know they can make a success of it. For prices, see page 632, Aug. 15. October is a good month for putting out basswood-trees. For prices, see our catalogue, mailed on application. At present, however, we have only one size in our nursery—from one to five feet.

JENNIE ATCHLEY'S HOME
will be at Beeville, Bee County, Tex., in 1893, ready with queens again. 19tfdb

WANTED.-To exchange my new Red Mark price list and description of the new Soper Bee Feeder; best entrance feeder made, for your address. W. D. SOPER, Jackson, Mich., Box 1473.

5 Horse Power Boiler and 4 Horse Power Engine **FOR SALE.**
In fine order, price $115.00, free on cars.
T. B. BARTLETT,
FARNUMSVILLE, WORCESTER CO., MASS.

One Cent a Bolt -Wall Paper.
Finer, 2, 2½c. Gold, 3c. Embossed solid gold, 4c. Ingrain, 5c. Send stamp for 100 samples. Reed, Wall-paper Jobber, Rochester, Pa. 19d.

LARGE APIARY FOR SALE in Arizona. For particulars address JOHN NIPPERT,
Enclose stamp. 19d Phœnix, Ariz.

FOOTE BROS., MEDINA, O., offer S. C. W. Leghorns, D. Brahmas, and S. P. Hamburg cockerels at low prices. 19-20-21d

BUFFALO, N. Y. Unsurpassed Honey Market.
BATTERSON & CO. Responsible, Reliable,
Commission Merchants. 18tfdb **and Prompt.**

Wants or Exchange Department.

Notices will be inserted under this head at one half our usual rates. All advertisements intended for this department must not exceed five lines, and you must SAY you want your adv't in this department, or we will not be responsible for errors. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements We can not be responsible for dissatisfaction arising from these "swaps.'

WANTED.–To exchange Scotch Collie pups for any thing useful on farm or in bee-yard.
15tfdb N. A. KNAPP, Rochester, Lorain Co., O.

WANTED.—To exchange yellow Italian queens, and strawberry-plants cheap. Bubach, Jessie, Eureka, Haverlands, Warfield, Crescent, Lady Rusk, for poultry, or offers. 15tfdb
MRS. OLIVER COLE, Sherburne, Chen. Co., N. Y.

WANTED.—To exchange one high-grade Safety bicycle; one 49-inch Columbia light roadster bicycle; one Odell typewriter; tested Italian queens, for wax, honey, or offers. J. A. GREEN,
13tfdb Dayton, Ill.

WANTED.—To exchange Light Brahmas (Felch strain), Silver Dorkings, 1 bull terrier (female), 2 rat and bull terriers, crossed (females), 1 Novice extractor, 1 organini, 100 feet music, 1 plow, 1 double shot-gun, 1 parlor cigar-case, for offers.
18-19d ELIAS FOX, Hillsboro, Wis.

WANTED.—To exchange a Warwick Perfection Safety bicycle, used but little, and good as new; also a Gunkel E-flat cornet in perfect order, silver and gold plated, in fine case, for wax, honey, or offers. 18-19d C. A. GRAVES, Shelby, Ohio.

WANTED.—An experienced girl or woman for general housework. A permanent place and good home for the right person. Address
MRS. CHAS. MCCLAVE, New London, Huron Co., O.

WANTED.—To exchange new or second-hand bee-hives for thoroughbred poultry. 19d
L. W. LIGHTY, East Berlin, Pa.

WANTED.—To exchange a new Model Hall typewriter for bees or bee-supplies. 19d
B. PARKER, Chelsea, Mich.

I WILL EXCHANGE for the best offer before Nov. 1st, a new 32-caliber repeating Winchester rifle, with Ideal reloader and 200 loaded shells. 19d
PERCY COVINGTON, Appleton, Cecil Co., Md.

WANTED.—Situation. An experienced man. Can work in an apiary, poultry, or on berry farm. Address, in care of postmaster, Marathon City, Mar. Co., Wis. P. O. Box 1000.

Black and Hybrid Queens For Sale.

For the benefit of friends who have black or hybrid queens which they wish to dispose of, we will insert notices free of charge, as below. We do this because there is hardly value enough in these queens to pay for buying them up and keeping them in stock; and yet it is oftentimes quite an accommodation to those who can not afford higher-priced ones.

I have some hybrid queens of this year's raising for sale, at 25 cts. each. 18-19d
J. H. JOHNSON, Middaghs, Northam'n Co., Pa.

I have 5 mismated Italian queens, some producing 2 and 3 bands, and some young ones just beginning to lay, that I will sell for 30c each, or 4 for $1.00. Some of these may produce pure bees.
M. H. DEWITT, Sang Run, Garrett Co., Md.

S. T. FISH & CO.,

Commission Merchants.

Green, Dried, and Evaporated Fruits, Honey, Butter, Cheese, Eggs, Potatoes, Poultry, and Grain.

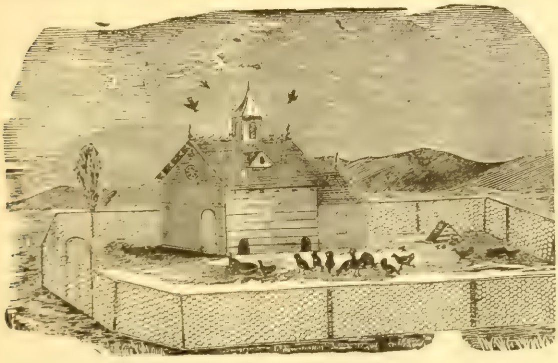
189 South Water St., Chicago, Ill.

We make a specialty of our **HONEY DEPARTMENT**, and sell our receipts throughout the United States. We have export connections whom we supply when prices reach such point as to permit foreign markets placing orders with us. We are opposed to adulteration in any form, and will positively not sell anything but pure honey. Send your adulterated honey elsewhere, but your pure honey **WE WANT**. We make liberal advances on consignments, and accept goods on a limit. **What Have You to Fear** by entrusting goods to our care? Nothing. We are responsible, and refer you to any bank or to GLEANINGS. To those who wish to sell at home we beg to advise we are buyers. We ask your correspondence, which will receive immediate response.

Respectfully, S. T. FISH & Co.

Cut this out and place in your honey house. Mention GLEANINGS.

Galvanized-Wire Poultry-Netting and Fencing.
The Best Made at the Lowest Price.



We handle only the G. & B. brand, which we consider the best made, as it is made of wire fully up to gauge, and has three-strand twisted-wire selvage, while other makes have only two. We have secured a carload from the factory, at a special low price, which we are able to sell lower than you can buy it anywhere else of equal quality, and lower than we have ever sold it before, though we have been getting more for it the past two years than we did in 1890. This carload that we have purchased is all 2-inch No. 19 netting, the size generally used for poultry. It was made nearly a year ago, and has lost some of the bright luster of fresh new goods; and it was for this reason alone that we bought it lower and are able to sell it cheaper. It is guaranteed equal in every respect to fresh new goods of the best quality, except in luster, which practically is of no account, because the brightest netting becomes dull in a few weeks after being put up. We have in stock all widths from 12 inches up to 60, which we can furnish at the following prices. All shipments must be made from here. We can not ship from New York or Chicago at these prices; but as we are able to secure through rates to almost all points from here, the freight will be little if any more than if shipped from either city. ¾-inch staples for below, 20c per lb.; 5 lbs. or over, 16c per lb.

Rolls 150 ft. long.	1 roll.	5 rolls.	10 rolls.	Rolls 150 ft. long.	1 roll.	5 rolls.	10 rolls.
2-in. No. 19, 12 inches wide,	$1 00	$ 4 50	$ 8 75	2-in. No. 19, 36 inches wide,	$2 90	$13 50	$26 00
" " 18 "	1 50	5 75	12 00	" " 42 "	3 40	16 00	31 00
" " 24 "	2 00	9 00	17 50	" " 48 "	3 75	17 50	34 00
" " 30 "	2 50	12 00	23 00	" " 60 "	4 75	23 00	44 00

The lot includes over 600 rolls, most of which are 48 inches wide, the usual size used. This price will last only as long as the stock lasts. You will do well, therefore to order early. The above prices are less than the wholesale quotations to-day on netting not one whit better, if as good. If you want other sizes, or shipment from New York or Chicago, write for our special 20-page netting catalogue, mailed on application.

A. I. ROOT, MEDINA, OHIO.

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CONVENTION NOTICES.

The Illinois State Bee-keepers' Association will hold a two-days session in Chicago, at the Commercial Hotel, Tuesday and Wednesday, Oct. 18 and 19, the week of the opening of the World's Fair. As the railroads will give cheap rates at that time, and there being business of importance to bee-keepers to come before the meeting, relating to the appropriation for a display at said fair, a large attendance is expected. Let all come well prepared to ask and answer questions, and have a good time.

J. A. STONE, Sec.

Bradfordton, Ill., Oct. 6.

The Southwestern Wisconsin Bee-keepers' Association will hold its next annual meeting in Boscobel, Grant Co., Wis., on the 13th and 14th of January, 1893, commencing at 10 A.M. All members of the association are requested to be present, as the following officers are to be elected: President, vice-president, secretary, assistant secretary, and treasurer. Blank reports will be sent to each member of the association for 1892, with instructions. A cordial invitation is extended to all bee-keepers, and especially to those who would like to join us. Each member will be notified at least one month before said meeting.

BENJ. E. RICE, Sec.

Boscobel, Wis.

The 13th annual convention of the Northeastern Ohio, Northern Pennsylvania, and Western New York Bee-keepers' Association will convene in the parlors of the Eureka Mineral Springs Hotel, Sægertown, Pa., Oct. 19th, 1892, at 10 A.M., for a two-days' session. The program will consist of practical topics relating to apiculture, discussed by practical bee-keepers. Sægertown is situated six miles east of Meadville, on the New York, Pennsylvania & Ohio Railroad. Reduced rates have been secured to those attending the convention. Sægertown is situated on the banks of a beautiful stream of water, and is one of the finest summer resorts in the country. A steamer is afloat on the river, and will be at the disposal of all wishing it. It is hoped that there will be a large attendance. Ladies are especially invited. Programs will be sent to members, and to others who request it of the secretary.

M. E. MASON, President,
Andover, O.

G. SPITLER, Secretary,
Mosiertown, Crawford Co., Pa.

Wants or Exchange Department.

Notices will be inserted under this head at one-half our usual rates. All advertisements intended for this department must not exceed five lines, and you must SAY you want your adv't in this department, or we will not be responsible for errors. You can have the notice as many lines as you please; but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, can not be inserted under this head. For such our regular rates of 20 cts. a line will be charged, and they will be put with the regular advertisements. We can not be responsible for dissatisfaction arising from these "swaps."

WANTED.—To exchange Scotch Collie pups for any thing useful on farm or in bee-yard.
15tfdb N. A. KNAPP, Rochester, Lorain Co., O.

WANTED.—To exchange a new Model Hall typewriter for bees or bee-supplies. 19d
B. PARKER, Chelsea, Mich.

I WILL EXCHANGE for the best offer before Nov. 1st, a new 32-caliber repeating Winchester rifle, with Ideal reloader and 200 loaded shells. 19d
PERCY COVINGTON, Appleton, Cecil Co., Md.

WANTED.—To exchange fox-hound pups for pointer bird-dog, breech-loading or Winchester repeating shot-gun or rifle, or any thing useful in apiary. J. E. PRYOR, Middle River, Iowa. 20-21d

The "Progressive Bee-Keeper."

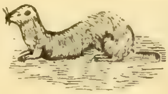
A practical monthly journal for beginners. Will be sent from Sept., '92, to Dec., '93, for 50c, to all new subscribers. Sample copy free. Address 19tf
E. F. QUIGLEY, Unionville, Mo.
Please mention this paper.

FOOTE BROS., MEDINA, O., offer S. C. W. Leghorns, D. Brahmas, and S. P. Hamburg cockerels at low prices. 19-20-21d

CLOSING-OUT SALE.

No. 1 Sections, $2.50 per M. Full colonies of bees in 8-frame L. hives, $4.00 per colony. Send for reduced list.
W. D. SOPER, Jackson, Mich. 20tfd

FOR SALE. **25 CHOICE B. P. ROCK COCKERELS.**
Also a few choice S. C. W. Leghorn Cockerels. Good healthy birds. For prices address with stamp,
20-21d WILL HAWLEY, McConnell, Ill.



800 **FERRETS,** a fine lot of **Scotch Collie Pups** and a trained bird-dog for sale. Price list free. **N. A. KNAPP, Rochester, Lorain Co., Ohio.**
18tfdb
☞In responding to this advertisement mention GLEANINGS.

WANTED.—To buy 125 to 150 stands of Italian or hybrid bees. Must be cheap. Address
W. D. BUNTING, Uvalde, Texas.

75c. Golden Queens by Return Mail. 75c.
For beauty and business. Safe arrival and satisfaction guaranteed. This is a money-order office.
J. B. CASE, Port Orange, Vol. Co., Fla.
☞In responding to this advertisement mention GLEANINGS.

SAVE MONEY.—Send to J. P. H. Brown, Augusta, Georgia, for his price list of supplies. Hives and foundation at wholesale rates. 4tfdb

AUSTRALIA.
Wanted—every bee-keeper in Australia to send for my large illustrated catalogue of bee-keepers' supplies, American queens, etc., etc. Post free.
18-23db **H. L. JONES, Goodna, Queensland.**
Please mention this paper.

SECTIONS.
$2.50 to $3.50 per M. Bee-Hives and Fixtures cheap. **NOVELTY CO.,**
6tfdb **Rock Falls, Illinois.**
☞In responding to this advertisement mention GLEANINGS.

NEW YORK CORRESPONDENCE
SCHOOL OF LAW
FOR HOME STUDY
243 BROADWAY N.Y.
INTRODUCTORY LECTURE FREE
☞In responding to this advertisement mention GLEANINGS.

VIOLINS GUITARS MANDOLINS
MURRAY & HEISS. CLEVELAND · OHIO ·
MUSICAL GOODS OF ALL KINDS.
CATALOGUE FREE
☞In responding to this advertisement mention GLEANINGS.

Foundation Reduced 3 cts. Per Pound.
SECTIONS I sold at $3.00 now selling at $2.60. Bingham Smokers at cost. Send for Free Price List of every thing needed in the apiary. 6tfdb **M. H. HUNT, Bell Branch, Mich.**

HONEY COLUMN.

CITY MARKETS.

CINCINNATI.—*Honey.*—Demand is good for all kinds of extracted honey at 5½@8c on arrival, according to quality. Arrivals are not equal to the demand. We don't dare to solicit new trade. Comb honey is scarce. A good business could be done at 15@16c for best white if stock were on hand. There is a fair demand for beeswax at 23@25c for good to choice yellow on arrival. Supply is good.

CHAS. F. MUTH & SON,
Oct. 11. Cincinnati, O.

BUFFALO.—*Honey.*—Our market continues steady and firm at mostly 15@16 for fancy 1-lb. comb; No. 2, 12@14; No. 3 clover, etc., 8@10. We have a much lighter supply than usual for our winter trade, and need several tons yet. Should be much pleased to hear from all those adjacent to this market, assuring them the best possible results obtainable anywhere. Will advance ⅔ value and more on all grades. Extracted honey for this market should be mostly in 10-oz. tumblers, 12 or 18 in a crate, ranging $1.25 to $1.50.

BATTERSON & CO.,
Oct. 8. 167, 169 Scott St., Buffalo, N. Y.

ALBANY.—*Honey.*—Demand good for honey now, and receipts lighter than will be later. We think early sales the best. We quite: White comb, 15@16; mixed, 13@14; buckwheat, 12@13. Large and imperfect combs and double glassed, etc., sell for less. Extracted, white, 8@8½; mixed, 7½@8; dark, 6@7. Especial good demand for extracted this season. *Beeswax*, 27@28. If you wish, will advance you ¾ market on receipt of any honey, and sell promptly and remit balance. Write us if you want some shipping-pasters with a number indexed to you on our books. It is a neat way to ship.

H. R. WRIGHT,
Oct. 3. 326, 328, 330 Broadway, Albany, N. Y.

NEW YORK.—*Honey.*—Demand for honey increasing. Market firm; quote as follows: Fancy, 1 lb., 17; 2 lb., 13. Fair, 1 lb., 12@15: 2 lb., 11@12. Buckwheat, 1 lb., 10@11; 2 lb., 9@10. Extracted, clover, 8@8¼; buckwheat, 6. *Beeswax*, 25@27.

Oct. 10. CHAS. ISRAEL & BROS.,
110 Hudson St., New York.

ST. LOUIS.—*Honey.*—Choice white-clover honey in 1-lb. sections, 16@18; fair, 13@15; buckwheat, broken, and dark, 7@10. Extracted, in bbls., dark, 5¼@5½; light, 5¾@6¼; in cans, choice white, 8@9; fair, 6½@7½. *Beeswax*, prime, 24½.

Oct. 10. W. B. WESTCOTT & CO.,
St. Louis, Mo.

BOSTON.—*Honey.*—Market very strong for comb honey. Best white 1-lb. comb selling at 18@19; no 2-lb. on hand. Extracted white, 8@9. No beeswax on hand.

BLAKE & RIPLEY,
Oct. 10. Boston, Mass.

KANSAS CITY.—*Honey.*—The supply of comb and extracted is light; demand good. We quote No. 1 white 1-lb. comb, 16@17; No. 2, 1 lb., 14@15. No. 1 amber, 1 lb., 15@16; No. 2, 10@12. Extracted, white, 7@7½; amber, 5@6. *Beeswax*, 20@21.

Oct. 10. CLEMONS-MASON COM. CO.,
Kansas City, Mo.

DETROIT.—*Honey.*—Best white comb honey in fair demand at 14@15; dark or amber, 12@13. Extracted, 7@8. *Beeswax* dull at 24@25.

M. H. HUNT,
Oct. 10. Bell Branch, Mich.

KANSAS CITY.—*Honey.*—There is a good demand for honey, but a very light supply. Price of 1 lb. comb, white, 17c. Extracted, 6@7½. *Beeswax*, 22@25.

HAMBLIN & BEARSS,
Oct. 10. 514 Walnut St., Kansas City, Mo.

CHICAGO.—*Honey.*—Fancy white comb honey selling at 17@18c; second grade, 15@16. We guarantee to sell no extracted honey less than 7c, and from that to 8½. *Beeswax*, 26. All the above scarce on our market, and in good demand. We advise prompt shipments.

S. T. FISH & CO.,
Oct. 10. 189 So. Water St., Chicago, Ill.

ALBANY.—*Honey.*—Receipts are quite large, both of comb and extracted, but it is principally dark honey. White clover seems to be scarce, and commands a good price. We quote fancy white 1-lb. sections, 17@18c; good, 14@15; mixed, 12@13; buckwheat, 10@12; 2-lb sections sell at a cent a pound less. Extracted, 6@8c. We have made one sale of prime beeswax at 30c per lb.

CHAS. MCCULLOCH & CO.,
Oct. 12. 393, 395, 397 Broadway, Albany, N. Y.

CHICAGO.—*Honey.*—The honey market is firm, and we get 17@18c for best lots of white comb. Extracted brings 6@9c per lb., according to quality and kind. *Beeswax*, 22@26.

R. A. BURNETT,
Oct. 8. 161 So. Water St., Chicago, Ill

ST. LOUIS.—*Honey.*—Demand for extracted continues good, at 5¼@5⅝. Demand for comb quiet. We quote 10@16. *Beeswax*, prime, 24½.

Oct. 1. D. G. TUTT GRO. CO.,
St. Louis, Mo.

WANTED.—50.000 lbs. of choice white comb honey.

Address BYRON WALKER,
17tfdb Evart, Mich., or Wyalusing, Wis.

FOR SALE.—Comb or extracted honey, boss in quality. Will sell reasonable Samples free.

J. B. MURRAY, Ada, Ohio.

FOR SALE.—1000 lbs. buckwheat comb honey.

20tfdb D. F. LASHIER, Hooper, N. Y.

FOR SALE.—10 barrels choice white-clover honey. Will put it up in almost any style of package desired. Price on application.

EMIL J. BAXTER, Nauvoo, Hancock Co., Ill.

FOR SALE.—1500 lbs. white-clover honey; nearly all in 1-lb. sections, packed in 24-lb. single-tier cases, delivered at R. R., 15c per lb.

WM. VAN AUKEN, Woodville, Jeff. Co., N. Y.

HONEY WANTED. Highest Market Price.
Spot Cash. BATTERSON & CO.,
BUFFALO, N. Y.
Please mention this paper.

Muth's
Honey - Extractor.

Square Glass Honey-Jars,
Tin Buckets, Bee-hives.
Honey-Sections, &c., &c.
Perfection Cold-Blast Smokers.

APPLY TO
CHAS. F. MUTH & SON, Cincinnati, O.

Send 10-ct. stamp for "Practical Hints to Bee-keepers."
Please mention this paper.

TAKE NOTICE!

BEFORE placing your orders for SUPPLIES, write for prices on One-Piece Basswood Sections, Bee-Hives, Shipping-Crates, Frames, Foundation, Smokers, etc. PAGE & KEITH,
14tfdb New London, Wis.
Please mention this paper.

BEE-HIVES, SECTIONS, ETC.

We make the best goods and sell them cheap.
Our Sections are far the best on the market.
Our Works turn out the most goods of any factory in the world.
Our goods are known as the best throughout the United States and Europe.
Write for free, illustrated catalogue and price list.

G. B. LEWIS CO., WATERTOWN, WIS.
Please mention this paper.

Winter Losses

Are not always the result of the same cause. They may come from starvation; from poor food; from improper preparations; from imperfect protection, or from a cold, wet, or possibly a poorly ventilated cellar, etc., etc. Successful wintering results from a proper combination of different conditions. For clear, concise, comprehensive conclusions upon these all-important points, consult "ADVANCED BEE CULTURE." Five of its thirty-two chapters treat as many different phases of the wintering problem. Price of the book 50 cts.; the REVIEW one year and the book for $1.25. Stamps taken, either U. S. or Canadian. New subscribers to the REVIEW for 1893 receive the balance of this year free. **W. Z. HUTCHINSON, Flint, Mich.**

Best on Earth.

More than one hundred thousand Bingham & Hetherington Honey-knives and Bee-smokers in daily use. Illustrations sent free.

Bingham & Hetherington,
Abronia, Mich. 7tfdb

PRICE $2.
(POSTPAID).

Ladies' Fine Shoes, Genuine Kid, Soft Soles; Style, Fit, and Wear Equal to $3 Shoes. High or Low Heel; Broad or Narrow Toe; Sizes 1 to 7. C D E or E E Widths. Send your size. Sure Fit. Patent tips, same price.

C. L. Griesinger
Medina, O.

Send P. O. order, Registered Letter, or Postal Note.

Was very much pleased with the shoes.
Ocean Springs, Miss. Mrs. Seymore.

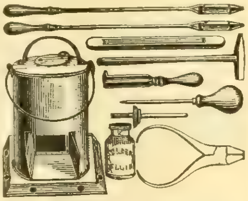
Please mention this paper.

BEES FOR BUSINESS.

Warranted queens from my choice strain of yellow hustlers, bred for working qualities and gentleness as well as beauty, 75 cts. each by return mail. Tested, $1.25. A few mismated queens, 25 cts. each. 18tfdb **J. A. GREEN, Dayton, Illinois.**

WANTED.—Reliable parties to distribute and collect for *LADIES' TOILET - CASES.* Well worth $1.00 in any family. Will send sample and full instructions by mail for 35 cts. in stamps, returnable if not satisfactory. Address J. C. Frisbee, Gen'l Agt., 172 Maple St., Denver, Col.
Reference, A. I. Root, Medina, Ohio. 8-24db

OATMAN'S SOLDERING AND REPAIR KIT



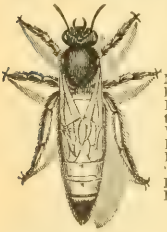
Consists of fire-pot, soldering-irons, solder, and soldering-fluid, with tools compl'te as shown in cut, with directions for soldering different metals, and how to keep your soldering-irons in shape. Whole kit, boxed, 12 lbs. Shipped on receipt of $2.00. Agents wanted.

8-7db **O. & L. OATMAN, Medina, Ohio.**

BEE SUPPLIES RETAIL —AND— WHOLESALE.

Everything used in the **Apiary.** Greatest variety and **largest** stock in the West. New catalog, **54** illustrated pages, free to bee-keepers. **E. KRETCHMER, RED OAK, IOWA.**

Please mention this paper. 2tfdb



WESTERN BEE-KEEPERS' SUPPLY HOUSE.

ROOT'S GOODS can be had at Des Moines, Iowa, at ROOT'S PRICES. The largest supply business in the West. Established 1885. Dovetailed Hives, Sections, Foundation, Extractors, Smokers, Veils, Crates, Feeders, Clover Seeds, etc. Imported Italian Queens. Queens and Bees. Sample copy of our Bee Journal, "THE WESTERN BEE-KEEPER," and LATEST CATALOGUE mailed FREE to Bee-keepers.

JOSEPH NYSEWANDER,
Des Moines, Iowa.

FALL Eggs and Plants, Fowls, Poultry-books and Papers; finely ill. circular free. Address GEER BROS., St. Marys, Mo.,
14tfdb Or, H. B. GEER, Nashville, Tenn.

Porter Spring Bee-Escape. **A Great Success.**

We guarantee it to be far superior to all others. If, on trial of from one to a dozen, you do not find them so, or if they do not prove satisfactory in every way, return them by mail within 90 days after receipt, and we will refund your money. PRICES: Each, by mail, postpaid, with full directions, 20c; per dozen, $2.25. Send for circular and testimonials. Supply-dealers, send for wholesale prices. 10tfdb **R. & E. C. PORTER, Lewistown, Ill.**

Mention Gleanings.

The Oldest, Largest, Best and Only Weekly Bee-Paper in America. Sample Copy Free.
—: 32 pages—$1.00 a Year :—

The American Bee Journal.

Address **GEORGE W. YORK & CO.,**
199 Randolph St., CHICAGO. ILLS

TO NEW SUBSCRIBERS—FROM NOW TO JAN. 1, 1893, 20 Cents; TO JAN. 1, 1894, $1.00.

GLEANINGS IN BEE CULTURE
A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS.
ILLUSTRATED SEMI-MONTHLY
PUBLISHED BY A. I. ROOT.
$1.00 PER YEAR MEDINA OHIO

Vol. XX. OCT. 15, 1892. No. 20.

STRAY STRAWS

FROM DR. C. C. MILLER.

Prices of honey are slowly climbing.

First frost on my place, Oct. 5. Long season.

The crop of new bee-journals this year was not unusually large.

Honey-flow didn't wait for frost, but stopped some days before.

Feeding for winter. Doolittle says in *Review*, should not be done too rapidly; five pounds a day is better than faster.

In improving a strain of bees, Hasty, in *Review*, thinks it important to encourage those colonies which start very few queen-cells.

Are you sure, dead sure, that your bees have stores enough for winter? May be you'd better give them a little more. They'll not waste it.

Bicycles ought to come down in price, ought they not? You see, it doesn't cost them any thing for advertising. All the riders advertise them gratis.

Laying workers, in a few cases that I have noticed, ceased laying when given a sealed queen-cell, before the queen hatched out. Is that the general rule?

Geo. F. Robbins doesn't like my way of preventing increase (p. 725). Neither do I. But I like his still less, for it would make me have additional help to watch for swarms.

Uniting colonies or driving away robbers, J. F. Shirk says in *Review*, he does by using a a spray of carbolic acid—one dram of acid to seven of water, with half a dram of glycerine.

Heather honey is a standard article across the ocean, but it seems the plant will not grow this side. The honey is fine, but has the peculiarity that it can not be extracted—too thick.

The *Medical News* says the records of Yale College during the past eight years show that the non-smokers are 20 per cent taller than the smokers, 25 per cent heavier, and had 66 per cent more lung capacity.

Bee-escapes are in high favor in England, where they are very appropriately called *super-clearers*. The *British Bee Journal* favors simple cones, letting the bees escape outwardly, for early work; but as soon as honey *begins* to fail, then the Porter.

"Once a robber always a robber" is one of the teachings about bees that has passed current because no one contradicted it. I venture to say, with some fear and trembling, that there is very little truth in it. To-day, with no honey yielding, you see robbers trying every crack and crevice; and to-morrow, with a good flow, not a robber is to be seen. What has become of them, if they are robbers for life?

Wax-worms, when first hatched out, are killed by a very little sulphur; but when they become hoary in wickedness they need to soak for hours in a thick smoke before they will succumb. They are somewhat, in this respect, like weeds and bad habits.

G. M. Doolittle abuses me in *Review*. True, he doesn't call me by name, but then he talks about bee-keepers that get on a craze over a new thing and try it on the whole apiary instead of first trying the experiment on a few colonies. I knew whom he meant just as soon as I read it.

Drone brood, well advanced, is recommended as fish-bait, particularly for trout, by Herr Tirpitz, in *Deutschen Bienenfreund*. Can't we get up a market for our drone brood, selling to anglers for so much a pound, or shall we sell them all our colonies that have drone-laying queens or laying workers?

Hutchinson has another little girl to help work on the *Review* when she grows big enough. The twins are Nora and Cora, and now he might call the new one Dora. Then when he grows rich through the *Review*, and retires to his country estate, he can go out in the woods and call one of the girls and the whole three will flock around him.

October has come,
And the bees' busy hum
Is kind o' dyin' away.

The hope of a crop
Must surely now stop,
But we can begin gettin' in talk about the bright prospects for another year.

Anent laying workers, H. Fitz Hart says he found two in a hive with a laying queen only a few months old. He thinks laying workers often the cause of queenlessness, rather than queenlessness the cause of laying workers. Possibly; but in that case I should hardly expect that giving brood or queen-cells would lead to the removal of the pests.

A robbers' exchange is Hasty's last conceit, in *Review*. "An empty hive with a very small entrance, in which a little waste honey is put from time to time. Then if any mischief is going on anywhere it will be made known to you by the crowd of would-be robbers bobbing around the exchange; but if the exchange is quiet you may feel comfortably assured that honesty prevails throughout the yard."

Prevention of after-swarms. A very simple way is given by Hedrich, in *Bienen-Vater*. Place in front of the somewhat enlarged entrance of the hive a box (a cigar-box for 250 cigars is suitable), having an entrance one-fourth as large as the hive-entrance, a suitable alighting-place at this entrance with a little board to shade it. The first swarm goes through all right, but all after-swarms stop in the little box, make a big row there, and then return to the hive.

To SEPARATE SWARMS that cluster together, H. L. Jeffreys gives this plan in *American Bee-keeper:* Set two boards up edgewise, far enough apart to hang frames between, making a sort of temporary bee-hive. Hang between the boards about ten frames for each swarm in the cluster, having every fifth frame contain an empty comb; shake the bees on the frames; cover with a cloth; leave them thus for three or four hours, when each swarm will be separated with its own queen, and can be put in its own hive.

HONEY ADULTERATION.

THE COMMISSION MAN VERSUS THE HONEY-PRODUCER; SOMETHING FROM A COMMISSION MAN.

I read Prof. Cook's article on honey adulteration, page 688, twice and thoroughly. I may be mistaken; but if I read it right, I come to this conclusion: Bee-keepers have an enormous advantage over the honey-dealers, to say nothing of the packers or mixers. The new law, which went into effect on Sept. 1, 1892, reads as follows: "Whoever shall adulterate maple sugar or honey with glucose, cane sugar or syrup, beet sugar or syrup, or any other substance for the purpose of sale, or offer for sale maple sugar, maple syrup or honey *that has been adulterated in any way*," etc. Would not the man who fed his bees on sugar syrup be equally guilty (if not more so) than the man who mixed honey with cane syrup? And yet it could not be proven against the former, for I believe no chemist will make an affidavit to positive detection of same in the former. But in the latter he can, according to Prof. Cook; and should a man suffer penalty of the law because he added sugar or glucose, to protect the former, who adulterates the bees, to prevent the discovery of his own deception? And if you did, would you be doing the public, the dealer, or the bee-keeper good? It strikes me there is a loophole for the latter, only the public and the dealer must suffer just the same.

Prof. Cook also states, in his results, that the best glucose costs about 2 cts. per lb. The price of the cheapest is more than that. The price of the cheapest on Saturday was 2.37, carload lots. The best glucose is worth 5 cts. per lb.; the price of granulated sugar is 5.18; cane syrup is 24 cts. per gallon, which is cheaper than glucose, as it is .02$\frac{2}{11}$ per lb. You will also see here that it is a question whether that new law will hold good.

But the best I have seen is an article, also in GLEANINGS of Sept. 15, page 690, by Mr. W. J. Cullinan, of Quincy, Ill. But then you would have to get a standard, and then there would be more grades of honey, which would be better for dealers, and the price would be according to grade. It would be stamped, which would hold the dealer safe. As it is now, a bee-keeper can mix honey, ship to a dealer who sells on commission, gets his money, makes his returns, and then the retailer is gobbled up, fined, or sent to jail, providing the dealer is out of the State. If the dealer is in the State, he must stand the consequence. He, in turn, must look to the bee-keeper. If he is not in the State, he can not hold him. If he is in the State, and the dealer is fined $500, he looks for the bee-keeper, finds him at a cost of another $100, and then discovers that the bee-keeper is not worth a cent. The dealer loses $500 fine, $100 in looking for his man, pays cost of court and lawyer's fees, which will be making it light at $200, or a total of $800; then it may cost half that much to have the supposed bee-keeper sent to jail, which is an awful lot of satisfaction that a dealer gets at a cost of $1200; and I for one do not believe that there are not some bee-keepers who are not above mixing honey; at least, from my information out of the *American Analyst* of June 18, 1892, pages 209-211, there are some of the most reliable dealers in the country quoted as selling adulterated honey, ourselves not excepted; and a large concern for whom I believe GLEANINGS has a very high regard for its honest dealing and good reputation for the honey market, also state they trust to the honesty of their shippers. Truly it strikes me as being a sad state of affairs—a bee-keeper having the right to feed his bees on what he likes, and no one to interfere with him, as there can be no direct proof brought against him. We have had comb honey from Virginia, also from New York State, which was very pretty, but tasted just like so much sugar-water; but we sold it for what it was, and sold it cheap; and yet the shippers, I believe, were not satisfied with what we got, although for our own use we would not have given nearly as much as we got, for it was only the looks that sold it.

We are willing to keep the ball rolling, and help along the sale and the enforcement of selling pure honey; but it strikes me that there will have to be some other plan than the one pursued so far. CHAS. ISRAEL.

New York, Sept. 30.

[As we stand in the relation of honey-buyer and honey-producer, as well as one who, from the editor's standpoint, sees more intimately both sides, we may be in a position, possibly, to give some facts without prejudice or bias. That bee-keepers may adulterate honey before it comes from the hives, as made by the bees, is possible. We have known it to be true in only one case, but in that "the other fellow squealed," and the bee-keeper himself was cautioned against a continuance of the practice under pain of receiving a little unenviable notoriety. Yes, it is *possible* that the producer may adulterate, but it is very improbable. Adulteration is in itself so iniquitous, hateful, and injurious to every interest of the bee-keeper that it is the very last thing he would do. He feels so outraged, that, if he could get hold of the dishonest city adulterator, he would prosecute him to the fullest extent of the law. Bee-keepers as a class would no more adulterate their honey than farmers would make oleomargarine if they could. But for the sake of argument we will suppose that a certain few would do so. As in the case already mentioned, some neighbor or some visiting bee-keeper would be liable to discover some evidences of the practice, and report the same to the bee-papers at once. Honey-producers as a class, we firmly believe, are decidedly social in their relations one with another. They not only have State and county conventions, but visit back and forth. As editors of GLEANINGS we have visited the homes of hundreds of bee-keepers all over the country. We have come upon them unexpectedly, when their apiaries and bee-houses were in all sorts of disorder, but never have we seen the least evidence of any kind whatever, that glucose feeding for the purpose of producing comb honey had been contemplated or practiced. We know of just one who did do it, as above mentioned, and possibly there may be a few others; but their number, as compared with honest honey-producers who feel aggrieved and injured because of the mixing on the part of the city chaps is as nothing. Now, if we are wrong in our assumption — and possibly we are — we want the brethren everywhere to speak right out. If you do not wish to have your name as informant mentioned in connection with the matter, nor any thing done about it at all, say so; at any rate, tell us where you know of a producer who is engaged in the mixing business, and we will keep it "under our hat" if you say so.

But our friend Israel, as above, has made a good point as to *how* commission men may be imposed on — not, we think, by bee-keepers themselves, but by those who have bought from bee-keepers direct; for not all honey, if we understand the matter correctly, goes directly from the hives to the commission house. It very frequently passes through the hands of a second party. We should like to hear from honey-producers and other commission men in regard to this same matter. Let us have the truth, cut where it will.

REMINISCENCES.

REV. L. L. LANGSTROTH RECOUNTS, IN A VERY INTERESTING WAY, HIS EARLY CAREER.

I was born in the city of Philadelphia, Dec. 25, 1810, but a square off from old Independence Hall. My paternal grandfather was an Englishman, who, coming to that city on business for his grandfather, was so much pleased with the country that he made it his home, and married a young woman from Berlin. Settling near Philadelphia, he built one of the first mills in the British colonies for the manufacture of fine paper. At that time, the preference for every thing English was so strong that it was only after years of success that he ventured to put his own mark upon his paper. By his friends and acquaintances he was often called by the honored title of "The Peacemaker." He was noted for his skill in horticulture, and this once procured for him a visit from General Washington. An anecdote, which I had from the lips of my aged grandmother, will give a very good idea of my grandfather's character.

One winter evening, toward the close of his life, after reminding his wife how greatly God had prospered them, he showed her some papers by which he could establish his claim to a considerable estate in England. "But," said he, "my relatives there are much more in need of this estate than we are; and, with your consent, I should like to burn these papers." She told him that his wishes met her entire approval. The papers were thrown into the fire, and I have often sat before the old Franklin stove in which the cremation was made.

The mind of this venerable relative was so affected in her last sickness that she spoke no English, although it had long been familiar to her; but her prayers and hymns and Bible-texts were all in her German mother-tongue.

My great-grandfather, on my mother's side, was also of English descent, and his wife was a Lorraine, descended from a Huguenot who had been impoverished and exiled because he would not renounce the Protestant faith. It will thus be seen that English, French, and German blood flows in my veins. The children of our family who, in after-life, show marked traits of French descent, often begin to gesticulate, even in their cradle, with the index-finger of the right hand. I have inherited quite largely this French demonstrativeness.

The old family house is still standing in Chestertown, Md., built of brick brought from England by my mother's ancestors, as ballast to the vessels whose return freight was mainly tobacco from their plantations.

When I was an infant in the cradle, a careless servant, in the absence of my mother, threw on to the fire a rag saturated with sulphur, and left the room, which my mother, on entering, found filled with choking fumes. She had barely strength to snatch me from my cradle and rush to the door, and then, by a supreme effort, throw herself, with me still clasped in her arms, into the hall.

Very early in life I began to take an extraordinary interest in observing the habits of insects. My mother has often told me that, when I was about six years old, although my teacher reported me as doing well in other respects, she sometimes had to punish me for spending so much of my time in catching flies and shutting them up in paper cages. I remember very well how she once put me into a dark closet, after tearing up my cage and letting out my flies. I think that, if I were again in that room, I could, even if blindfolded, find the closet and creep into the corner where, as a little child, I cried myself to sleep.

Although my parents were persons of good intelligence, and in comfortable circumstances, they were not at all pleased to see me spend so much time in digging holes in the gravel walk, and filling them with crumbs of bread, pieces of meat, and dead flies, to attract the roving ants, so that I might better watch their curious habits. I know that I was once whipped because I had worn holes in my pants by too much kneeling on the gravel walks, in my eagerness to learn all that I could about ant-life. No books on natural history were given me; but I was considered a foolish boy whose strange notions ought to be severely discouraged. But nothing that could be said or done prevented me from giving to my favorite pursuits much of the time which my school companions spent in play.

Somehow I discovered that flies, apparently drowned, could often be brought to life by exposure to the sun's heat; and a proud boy I was when I made a practical proof of this fact to my incredulous companions. In my country rambles on Saturday afternoon (our only playday) I often brought home the nests of wasps, which I tied to the branches of sunflowers, so that I might watch with absorbing interest the maturing young leave their cells, and make so soon a vigorous defense of their homes. They did me no harm; but my companions were not always so fortunate if they ventured too close to my strange pets.

I can not show better the bent of my mind, and habits of observation formed so early in life, than by giving a particular account of what I noticed of the habits of the seventeen-year locust, and another species very closely allied to it — some of which could be found every year. I could not have been much over eight years old when these locusts first attracted my attention. Year after year I visited the Center Square, a public park of Philadelphia, to secure specimens and to study their fascinating transformations. The larvæ of these insects came out of the ground late in the afternoon; and I noticed that the holes out of which they crept were almost as smoothly bored as though made with an auger. As soon as an insect emerged from its hole it made for a tree or some other object, up which it could creep to a satisfactory height. If suddenly approached while in the act of mounting, it would often, "'possumlike," drop to the ground as if dead. After fastening its sharp claws into some chosen surface it remains motionless for a short time. When a larva first leaves its hole in the ground, its body feels quite hard; but before long it becomes almost as soft as dough. Now, in its soft state it can no longer crawl; and if prevented, before it became helpless, from getting a firm hold on some object, it would be quite impossible for it to emerge from its shell; but, fastened firmly by its claws, it soon began alternately to contract and expand its body, until what at first resembled a little crack on its back opened wider and wider, continually disclosing more and more of the emerging insect, until at last it raised its head and the larger part of its body from the shell, being prevented from falling out of it by the lower part of its abdomen, which was still held in the shell. It then looked considerably like an Egyptian mummy standing upright in its case, with its upper wrappings removed. Now, as the transition from their hard to their soft condition is a very short one, it is obvious that these holes, which are often bored through hard ground, must be made a considerable time before they are wanted, to enable the insect to push quickly through the little space that is needed to let it out, when its instincts teach it that the time is at hand for its coming changes. As soon as it has withdrawn its head, legs, and other parts of its body from the horny shell in which each was separately inclosed, it rests a while until its claws, which at first are too feeble to grasp any thing, become strong enough for it to climb out of its shell and cling to the rough surface on which it had fastened itself. Its wings, which are narrow and thick, can now almost be seen to thin out gradually, like a piece of dough over which a roller is continually passing. When they have reached their full expansion they remain thus flattened out until they become quite dry, when all of a sudden, by an involuntary motion, they assume the proper position for flight.

The locust lives only a short time as a flying insect, when the female bores holes into the extremities of small twigs, in which she inserts her eggs. The larvæ, when hatched, feed upon the twigs until the latter wither and fall to the ground, when they penetrate the earth, to reach the roots of trees, by sucking the juices of which with its sharp, hollow proboscis (as was discovered not many years ago by a distinguished lady), one species lives for seventeen years.

I was not over twelve years of age when I made most of my observations upon these locusts; but when I returned to Philadelphia, in the fortieth year of my age, it being locust year, I collected a large number of the larvæ from the trees in Independence Square, and sat up with my daughter and some of her school companions until after midnight to show them the curious changes just described; but from my boyish recollections I could have described them almost as vividly and accurately as I could after these last observations.

I did not confine my attention entirely to the insect-world. Catching mice, not fully grown, I put them into water until they were apparently drowned, and then, tying a string about their necks, wrapped them in cotton and placed them near the fire. After reviving, and disgorging the water they had been forced to swallow, they were quite willing to eat. If they offered to bite me, the water treatment was repeated until they became perfectly tame. In due time I could give them their liberty, and bring them at call to eat from my hand. Old mice might be drowned again and again, but they were always good for biting when they came to life; and I found that experimenting with them was like trying to "teach old dogs new tricks."

(Continued.)

CAUSE OF SWARMING.

TRIALS IN INTRODUCING.

In answer to C. C. Miller's request, page 613, it seems to me the question can be answered by one simple word; viz., "Nature." It is just as natural for bees to swarm as it is for them to gather honey. It is simply a natural provision for the propagation of the race. He further says, some people say it is best to let each colony swarm once; but those same persons think it would be a gain if the bees would not "desire" to swarm that once. Well, I don't think so, for two reasons. In the first place, it would cut off all increase unless "artificial;" and in the second place, the hives would be overcrowded, and bees would gather less honey. Some will doubtless say, "Give them more room"—a very good idea indeed; but, remember they must have room to work, as well as to store honey. It is just as easy to have a colony too strong as too weak.

A year ago I had one overcrowded in three stories, entrance open clear across the front, and an inch hole in the center of the front. I divided them, and either colony gathered as much honey as they all did together, thus proving to me that it is far better to let nature take its course this far, that is, to allow each colony (that desires to) to swarm once, and once only. I have known people to get their bees to sulking so they would do a mere nothing by returning the first swarm to the parent hive, time after time, and cutting out queen-cells.

I should also like to say just a few words in regard to introducing queens. On page 617 is an article headed "Introducing queens; even Doolittle Baffled." It is my opinion that this branch of the business will baffle any of the best of them so far as being "sure" of introduction. Several years ago I had only a few colonies; and early in the spring, long before there were any drones, one colony lost its queen. I sent off for a queen and introduced her by caging 24 hours; she seemed to be accepted all right, but the next day she was dead; and in a short time I took a queen from a strong colony, and introduced her by caging 48 hours. She was accepted, apparently, as the mother of the colony; but the following day she was dead. I then waited till there were cells nearly ready to hatch in the hive I had taken the queen from. I took a fine cell and coated it with honey; and after thoroughly subduing the bees with smoke I inserted it between two combs; but they tore it down and killed the queen. Then I took another cell and inserted it in a wire protector. The queen hatched in a couple of days, and they killed her; then I took another cell, just ready to hatch, and cut the queen out and let her run down between the combs after thoroughly smoking, and she fared no better than the rest. I then gave them a frame of brood in all stages, and they reared a queen of their own, and killed her. I repeated this operation from time to time, and each time they would rear a queen and kill her soon after hatching, until sometime in September. Then they reared a queen and allowed her to mate; and by her aid, and the occasional addition of a frame from other hives, they were fitted for winter.

Hillsborough, Wis., Sept. 10. Elias Fox.

[That bees swarm because it is in accordance with nature, no one will deny; but the problem is, how to overcome nature just as we do in other things whenever we may desire. Those who have out-apiaries are the bee-keepers who would like to do away with swarming. You see, it means either the constant supervision of an attendant, and that costs money, or runaway swarms, and that costs money. Automatic hivers may bring relief, but *they* cost money. If we can, then, it would be cheaper to take away the desire for swarming at out-apiaries, providing it does not mean a lessened honey crop.

With regard to your experience in introducing, there are rare instances, particularly those which have black blood in them, when any method of introducing will fail. It is useless to fuss with them when they get into the mania of queen-killing. They are like some people—they don't know when they are well off. With such a colony as you describe, we would scatter the bees (they are not supposed to have any brood) in eight or ten colonies, and move the hive away.]

BEE DIARRHEA.

DOOLITTLE ANSWERS A QUESTION ABOUT IT.

Question.—Last winter my bees contracted what is known as "bee diarrhea" quite early in the winter, and I wish to know what should be done with a colony of bees in winter quarters when the first symptoms of this disease appear.

Answer.—If the bees were in the cellar, and the temperature of the cellar were above 48° F., I would try cooling the cellar. On the other hand, if the temperature were 40° or cooler, I would try warming it up to the temperature first given, or a little higher. When the temperature of a cellar is just right it may be known by the quietness of the bees. The air of any room is always the warmest at the top, where any warmth-producing material is in the room, and for this reason I always place the strongest colonies in the bottom tier when putting them in the cellar; the colonies of medium strength as to numbers in the next tier, while all of the colonies having the smallest number of bees are placed in the upper tier. I have found by years of experience, that, if a strong colony becomes uneasy while in the top tier, it may be quieted by setting it on the cellar bottom, and that a small colony which is in a roar of disturbance can be caused to become as "still as death" by raising it from the bottom of the cellar up to the top; also closing most of the ventilation from the hive having the small colony will cause it to become quiet; and removing a whole top from an uneasy strong colony will cause them to quiet down and cluster compactly together for the rest of the winter. But all this should be attended to when the bees are set in the cellar, by putting them in their proper places in the cellar and ventilating each hive as it may require. If, in spite of all this precaution, some of them begin to spot the hive, I will say that, after trying all plans of cure, I now let them alone, for I consider it only a waste of time to fuss with them. If the reader does not agree, he can try giving them a flight in a warm room. Fix a box to set on top of the hive, the same having a glass top; or, should a warm day occur, carry the bees out for a flight; but after all this has been done, the bees will generally be dead before June, if they have the diarrhea bad enough to spot their combs and the inside of the hive during midwinter or earlier.

One thing which is always against this fussing with single colonies of bees which have become diseased is, that, by doctoring these, the disturbance required is apt to get other colonies uneasy and cause them to become diseased, while otherwise they would have gone through the winter quiet and all right. A change of food is sometimes beneficial; but, as I said before, the greatest success comes by letting them alone after placing them in the cellar, providing the temperature of the cellar can be controlled so it shall not go above 45 nor lower than 42 Fahrenheit.

STORING COMB HONEY.

Question.—How and where should comb honey be stored during winter? Is it necessary that the temperature in the room in which it is kept shall never go below the freezing-point? Comb honey which I tried to keep over winter last year cracked badly. Is it necessary to keep such honey in a warm room to keep it from cracking?

Answer.—I looked all through this query, expecting to find that this honey not only cracked, but that it granulated also, for I do not know that I ever kept any honey over winter where no pains was taken to keep it from the cold but that a part of it granulated, and the granulating of honey in the comb makes it more unsalable than almost any thing else which can happen to it which does not entirely destroy the comb. Comb honey should always be stored in a warm dry place during the fall and spring months at least, when a great change of temperature is likely to take place; but during the winter it may be kept in a dry basement-room or cellar where no frost ever reaches, provided you are on the lookout to take it out when the temperature on the outside rises much above that in the basement, otherwise the warm, moist, outside air, coming in contact with the surface of the cold or cooler honey, will cause moisture to stand in drops on the combs, when the honey will rapidly deteriorate. If I were trying to keep honey of any amount, which I wished to preserve in salable form, I would not let the temperature of the room ever go below 60°, while from 70 to 90° would be better. I once kept some section honey for three years, and found it better at the end of the three years than it was when taken from the hive. This honey was placed on a shelf about four feet from the floor of the sitting-room, right back of a base-burner coal-stove, during the time the stove had a fire in it; while during the summer months, when no fire was kept in the stove, the honey was carried to an upper chamber, facing the south, where the sun made the room very warm, in addition to the warmth coming from the kitchen stovepipe, which ran through this chamber. In this way the honey never "saw" a temperature of less than 60°, while from 80 to 100° was the rule much of the time. When I cut this honey it was nearly "jack-wax," and for quality it was not surpassed by any I ever tasted. I have often thought that it might pay to use this plan on a whole crop of honey during years when the production exceeded the demand, thus causing low prices to prevail, while the very next year might be a poor one, so that, thus keeping, it might double in price. When combs of honey are to be given to the bees, the cracking of the comb does no harm, for the bees will fix it up during the next season so it can not be told where the cracks were.

G. M. DOOLITTLE.

Borodino, N. Y., Oct. 3, 1892.

[There is no doubt but that honey stored away three years, as Mr. Doolittle describes, behind the coal stove in winter and in the garret in summer, will surpass by far in quality and richness any thing just taken from the hive. We should like to inquire whether any one has tried setting aside a whole crop of honey, as Mr. Doolittle suggests, keeping the same within a range of temperature of toward 100°. It is a question, however, whether such honey would bring more money in the market as people go so much by *looks* rather than by the *taste*, in their purchases. But there is a time coming, and we hope it will come very soon, when there will be a strong demand for this rich, ripe, thick, waxy honey. When consumers know what it is they will be willing to pay a big price for it — a price more than sufficient, we hope, to pay the producer for holding it over.]

SELF-HIVERS.

SOME EXPERIMENTS; A NEW DEVICE.

During the past season I did a great deal of experimenting with the self-hiver—not only trying all the known devices, but also originating many others never heard of, and perhaps never to see the light again. My faith in the self-hiver, after an experience with it of three years, is unbounded; and while my devices were imperfect my success was enough to convince me that the thing was not only practicable but destined to make a great advance in our pursuit. No doubt many others have conducted experiments on this line, and it is to be hoped that they will give their experience during the winter, as bee-keepers are greatly interested in knowing all that can be learned on the subject. It seems to me like foolishness, because one thinks he has discovered some new kink, to at once rush to the Patent Office, no matter how ill he can afford the expense, and where his money is usually lost to him for ever, in order to get a patent, a sort of notice to prevent the adoption of his devices. But I did not intend to switch off on patents, and will confine myself to the matter with which I started.

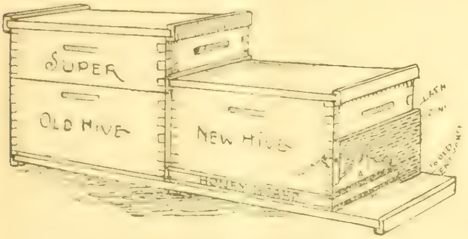
Last year my experience was not entirely satisfactory with the empty-hive-on-top principle, though by close watching and after-manipulation, I succeeded fairly well. There was no difficulty in getting the queen to run up into the hiver attached to the empty hive; and if one could always be present, it would be an easy matter to remove the old hive and thus secure all the swarm in the new hive. But if left to themselves, as would be the case in an unattended out-apiary, only a small swarm would be secured; and if left a number of days without attention it would gradually return to the old hive till only mere handfuls would be left, and would be liable to be overlooked in examining the hives for swarms.

During the past winter the devices of Pratt, Alley, and others were published in GLEANINGS, and they set me to thinking that it would be entirely practicable to secure the entire swarm, and as many more as the old hive could spare, without any after-manipulation. But after studying over the various devices a while, I decided that none of them would do the work without serious objections, and concluded to give the most promising a good trial before abandoning my old plan. Owing to my heavy losses in bees during the winter and spring, I had many hives of empty combs, and I thought that, by using these for hiving the swarms on, better results could be secured. I also used more wire cloth and less perforated zinc in my device, and generally secured larger swarms; but it was not an entire success. One thing learned was, that, during warm weather, a good many bees would take possession of the combs and keep them clear of moth, so there was no great trouble on that point.

While these experiments were going on I was trying both the Pratt and Alley methods, and soon found objections to both. The Pratt method, where the old hive rests on top of the empty one, works very well, secures good large swarms, and, if one could only tell when the bees had swarmed, it would not be very objectionable. But as the self-hiver will be wanted largely in out-apiaries, where the keeper can see them but once a week, it is another matter. Now, suppose I were to use this plan on an out-apiary of 100 colonies. I should have to lift off 100 full heavy hives, supers and all, just to see if any bees had swarmed. If you think this an easy matter, just try it, and I think you will soon be looking for something easier. Then, too, when the old colony becomes very strong they will often extend their combs into the empty hive, and many bees occupy it without having swarmed at all. In such cases the old hive must not only be lifted off, but the combs in the lower hive must be examined for queen or eggs, and this must be repeated on every visit. While all this *can* be done, it is too much work, and an easier plan must be found.

Mr. Alley sent me one of his very latest hivers, for which I was very thankful, although it cost me $1.50 for express charges. It was very late when it came, and I did not try it as thoroughly as I wished. I had a swarm issue through it twice on succeeding days, but somehow both returned to the old hive. In the second instance I saw the queen plainly in the trap, and a comb had been placed half an inch back of it, just as directed; but still, by evening nearly all the bees were back in the old hive. I am not ready to say that it will not generally catch the swarm, as I have too much confidence in Mr. Alley's statements, and think my experience was exceptional. Some experiments I had previously made on the same principles have convinced me, however, that, where there is no guard of any kind, the queen is often liable to return to the old hive. Then I do not see that Mr. Alley's device is a self-hiver at all. He simply aims to catch the swarm in an empty box, to be afterward hived by the keeper. It would seem to me that it should be called a new sort of swarm-catcher rather than a self-hiver.

I will now give the plan that I have finally adopted, and one that has so far worked to my entire satisfaction. In the first place, we want as few traps about it as possible, and to use such material as we already have, as far as practicable. I remove the hive expected to swarm, back its own length, and place a bottom in front, with the rear strip removed. On this I lay a queen-excluding honey-board, resting on the side strips, thus leaving a bee-space under it; connect this space with the entrance by bridging, the top of which may be wire cloth, but it should at first be covered by a board, to keep the bees from bunching on it, till they become accustomed to their new entrance. Lay ⅜-inch strips on the side and rear of the honey-board, to make an entrance for the new hive, and place the empty hive on it. Make a frame of lath, the size of the front of the hive, or less if the hive has no portico or projections. The lower strip should be placed up from the bottom, about an inch, so the upper edge will come flush with the honey-board, and it is to be provided with two or three wire-cloth tubes, for drones and queens. The direct entrance to the old hive is through the two lower rows of perforations, and under the honey-board. Now, when the bees swarm, the drones and queen find their way through the tubes, and remain only a few inches above their old entrance, and most of the bees will unite with the queen in the new hive upon their return. Now, when I find a hive that has swarmed (which can be readily ascertained by lifting off the cover) I place an inch-square stick in front of the old entrance, thus compelling all the bees to use the new entrance, and greatly strengthen the new swarm. Of course, some bees will continue passing through the honey-board to the old hive. This is all the manipulation necessary for from 7 to 14 days, when the old hive must be removed to a new stand, to give the young queen a chance to fly. This does away with my bee-escape method of strengthening the swarm. I get booming swarms; and if the surplus cases are changed to the new hives, the bees will keep right along at work in them, if any honey is coming in. If one is present when the bees swarm, the square stick can be placed, to cut off the direct entrance, while the swarm is out, and thus get all the swarm at once. The cut will fairly show my device; and I want to say that no patent will be applied for on it, and all bee-keepers are welcome to whatever rights I may have in the invention.



DIBBERN'S NEW SELF-HIVER.

One error, in connection with the self-hiver, into which many seem to have fallen, I wish to correct: that is, about swarms doubling up when several issue about the same time. From an experience of three years, with more than 200 hives each season, I do not recall a single case where swarms doubled up unless a queen was out somehow. June 28th I had five swarms in the air at once, and each quietly returned to its own hive. A number of times I had two and three out at once, always with the same result. There may be exceptions, but I am satisfied the rule is, that swarms *without queens* will not double up by going to a strange hive. Another error is the idea that the hiver will be useful only in small out-apiaries. I claim that it is just *the thing* for all kinds of apiaries, from the mechanic's or farmer's of a few hives, who is away all day at his work, to the bee-master with hundreds of colonies and half a dozen out-apiaries. C. H. DIBBERN.

Milan, Ill.

[So far as we can gather from our correspondent's article above, the Pratt automatic hiver works successfully, his only objection to it being the lifting of the upper story off from the bottom-board. Mr. Pratt's original self-hiver obviates this difficulty — that is, the hives are placed one in front of the other, on the same plan as illustrated above. Mr. Dibbern's arrangement, however, differs from Pratt's in that it provides for the egress of the drones, and is so constructed as to run the queen up into the perforated-zinc apartment in *front* of the entrance. But Pratt's tiering-up hiver is simpler than the horizontal plan, and hence we prefer it. The lifting of the upper story is no great objection. In the production of honey we never object to the lifting of heavy supers. The difficulty that you found with the Alley hiver was also the experience of Dr. Miller, as you remember. We quite agree with you that Alley's device is not a self-hiver, but simply a device to catch a swarm in an empty box, to be hived afterward by an attendant. "Swarm-catcher" would be a good name for it. The principal feature of the Pratt device, and which we think would be true of yours also, is, that it will hive a swarm and will not necessarily require the attention of an apiarist for several days. A hiver is not strictly automatic unless it does this.]

CAN WE HAVE A STANDARD SIZE OF SECTION?

DR. MILLER REVIEWS THE MATTER.

That wide-awake Frenchman, C. P. Dadant, put me down on the Albany program to open the discussion about the size of sections, without asking whether I knew or cared any thing about it. It so happened that I did feel somewhat interested in it, and studying the matter up a little has naturally increased that interest.

Before I forget it I wish to refer to that part of my paper at Albany which left the erroneous impression that I opposed the 1⅞ section on account of its weighing less than a pound. It is probably well known that "under-weight" sections are quite generally preferred. Whatever other reason there may be for their preference, it is unfortunately true that, in too many cases, they are preferred, because, going under the general name of "pound sections," these "under-weights" can be sold for the price of a full pound. How general this system of cheating is, I do not know. I do know that it is practiced by some of the most prominent and popular grocers in one of our largest cities. There is such irregularity in the weight of sections of the same size, it would seem the best way to sell every section by actual weight. But so long as that is not done, it is well to do every thing possible to prevent a section from being sold for more than its true weight. A 4¼x4¼x1$\frac{15}{16}$ comes so near to averaging a pound that many of them do weigh a pound each, and this gives a better chance for all to be sold, without weighing, for a full pound each. Now, I am glad to come down to a size so small that *all* will be less than a pound; for in that case the lack of weight would be more noticeable. If each section should weigh only half a pound it would not be possible to sell it for a full pound; and, on the same principle, the lighter it is, the less danger of selling as a full pound. For these reasons I decidedly prefer a 1⅞ section to any thing larger.

An esteemed friend has called my attention to the fact that differences in the width of sections do not make so much trouble as differences in the other dimensions. That is, if all sections were, say, 4¼x4¼ there would not be so much change of machinery needed to make all different widths from 1 to 2 inches as to change the 4¼ to 4½, 5, etc.; so if we could reach a standard as to height and length it would be quite a gain.

Now, I am glad to say that I believe we *have* reached a standard for the two dimensions. A table of the different sizes of sections made in a year by one of the large manufacturing concerns has been kindly submitted to me, and I find that about 98 per cent of all are 4¼ square. Surely that is a sufficiently large number to justify its being called standard, especially as the odd sizes are hopelessly divided up into 52 different kinds, and among these 52 kinds the most formidable rival of the 4¼ (4½ square) reaches only a little more than one-tenth of the odd sizes. It is noticeable that the odd sizes run larger than 4¼ square, the two largest being 6x6 and 8x4¼.

On page 19 the statement is made, that, at Albany, the commission men seemed to prefer larger and thinner combs, thus favoring 4½ square. Let me implore the friends who favor this last size, to do a little considering. It is only ¼ inch larger in height and length than the standard size. Can that trifling increase in size warrant keeping another size on the market? If a thinner section is wanted, the standard 4¼ can be made as thin as any other. There is one objection to 4½ square that would not hold against a size considerably larger; and that is, the fact that, being so near 4¼, there is danger of confusion wherever the two kinds are kept in the same place. At present I have sections measuring 1$\frac{15}{16}$ and 1⅞ in thickness, and I know something of the trouble of having two sizes so nearly alike that they must be held close together to tell which is which.

Is there any likelihood that we can reach a standard as to the thickness of the 4¼? I believe it now varies from 1½ to 2. Very few reach as high as 2, and very few want any thing less than 7-to-the-foot; so that, practically, the contestants may be considered four in number—7-to-the-foot, 1¾, 1⅞, and 1$\frac{15}{16}$. Possibly 1$\frac{15}{16}$ might come in as the "dark horse." For a long time I supposed that 1$\frac{15}{16}$ was the popular width; but, if I am rightly informed, 1⅞ is more in use. I changed last year from 1$\frac{15}{16}$ just because I wanted to go with the majority, and also because 1⅞ was lighter weight. I'm now ready to make a further change to 1¾ or 7-to-the-foot, if the majority say so.

Seeing, then, that there are only four kinds that are used to any considerable extent, and that there is so very little difference between these, it does not seem so utterly impossible for us to get down to two kinds, possibly one. Now, what means, if any, will be successful in bringing about such a result? The State and National Societies might do something by resolutions. But you may "resolute" till doomsday, and I'm not likely to make much change unless I see some good reason for it. How would it do for the manufacturers to agree among themselves to manufacture only the kind or kinds agreed upon as standard? I don't think it would do at all. If they are wise they will hardly attempt it.

No, the thing will not be brought about by any sort of compulsion. Indeed, I do not believe there would be any use in trying to get *all* to agree on one or two kinds. A man who has supers and all other fixtures adapted to a certain odd-sized section is not very likely to make any sudden change. But if I see that, in the long run, there will be an advantage gained by changing, and that change can be made without great inconvenience, you may count on my making that change. In this way I think it not unreasonable to expect something like a natural gravitation into one or two standard kinds, that gravitation perhaps materially accelerated by a little friendly consultation.

Suppose I am using 4x4½, and no one else, or very few, use the same size. When I send for sections there are none of that size kept in stock and I must wait till they are made. If the manufacturers are crowded with work on regular sizes I may have to wait a long time. This of itself is a pretty strong argument in favor of my coming in with the majority. Then the manufacturer says to me, "There is so much call for the standard kind that we keep thousands of them made up ahead, all packed ready for shipment, and can ship that kind any day you send in your order. Besides, we make a very large quantity of the standard at one time, necessitating no change of machinery, so giving you a little advantage in the lower prices we can afford." Unless I am very pig-headed, that sort of argument will have its effect on me; and just as soon as I can do so without actual loss I am likely to adopt a regular size.

Now, who will tell us which of the leading widths is best, giving reasons therefor? Isn't there some reason why one is better than the others? If there is no particular reason in this case, and each one uses a particular kind just because he happened to get started that way, then the question is, "What width or widths are in the majority?" Perhaps, Mr. Editor, you will be kind enough to tell us about that. So far as any thing occurs to me just now, the argument in favor of something as thin as or thinner than 1⅞ is, that bees generally seem to prefer nothing thicker than that, and that any thing thicker, at least as it seems to me, helps to perpetuate the system of selling short weights for full pounds. Against any thing as thin as or thinner than 7-to-the-foot, it may be said that, when separators are used, this comes so near to the width preferred by the bees for brood-combs that there is more danger of pollen being stored there, and the queen depositing eggs. C. C. MILLER.

Marengo, Ill., Sept. 29.

[Bee-keepers will have what they want—that is, what their supers take and markets call for, in the way of sections; and supply-dealers can do but little toward regulating a standard size. We have practically only three sizes as standards; viz., 1⅞, 1$\frac{15}{16}$, and 7-to-the-foot — all 4¼ in. square. We somewhat question whether it would be feasible or even desirable to have less. Producers and the various markets have their various likes and dislikes.

Referring to the 1⅞ section, there are two important reasons why they are taking the lead. Wood separators are so much better and cheaper that bee-keepers everywhere have adopted them where they could. As the majority of supers in use took the 1$\frac{15}{16}$ section with *tin* separators, it precluded the possibility of using *wood* separators *unless* a narrower section were used; namely, 1⅞. This fact, coupled with the other fact that the markets demanded a lighter section, made the 1⅞ the leader. Why are light weights desirable? It may be answered in this way: A buyer comes in and inquires the price of honey per pound. "Sixteen cents," is the reply, we will say.

"Well, I will take a section. How much is this one worth?"

"That is worth 13 cents."

No objection is made; but if he is met with the statement that the section is worth 18 cents he may demur. Again, sections are being sold more and more by the piece; and consumers generally understand that a section of honey is usually of light weight—that is, hardly a pound, and when they are charged less there is no objection. Again, for the same money a thinner comb shows off better than the same weight of a thicker comb. Next to the 1⅞ and 1$\frac{15}{16}$ size of section, the 7-to-the-foot takes the lead.]

RAMBLE NO. 69.

BEE-KEEPING AROUND JURUPA MOUNTAIN.

The Riverside apiary, described in Ramble 65, is situated upon the extreme eastern point of a broken range of mountains, about seven miles in length and not over a mile in width, and known as the Jurupa Mountains. The formation is, in many respects, peculiar, and it is evident that some convulsion of nature thrust them up here in the center of a plain, or it might be called a prairie. These mountains are nothing more nor less than piles of huge granite boulders. The granite in some places is quarried for building and monumental purposes. Upon another detached mountain near Colton, less than two miles in circumference, are limekilns, cement works, marble-quarries, both white and variegated, and an occasional pocket of onyx. In the Vermont quarries the stone is found in large and inexhaustible masses or seams; but here it is in large boulders; and when one has been quarried it is not certain that another of like quality will be found. There are also traces of gold and silver, but it is found in quartz pockets, and scarcely pays for the investment of capital to develop.

To give some idea of the honey resources of this little range of rocks, with the aid of Mr. Clark on one side and Mr. Wilder's broncho on the other, I obtained some notes and snap shots from the saddle. Setting out from the Rambler's cabin and following down the north side of the range, after a mile of travel we find the apiary of Mr. Choate. Here are 100 colonies, and a new and complete honey-house; and, though the stocks were very weak in the spring, the surplus amounted to 2500 lbs. With his bee-keeping and ranch work Mr. C. puts in his spare time in the large cannery at Colton.

Within half a mile of Mr. Choate's is a newly established apiary of 50 colonies, owned by Mr. Vaughn, who also lives in Colton. We now proceed nearly a mile further, and in front of the broad and level Cucamonga Valley we find the 200-acre ranch of Mr. W. E. Clark, with cattle, horses, poultry, and peach, orange, apple, and fig trees, and 170 colonies of bees. While Mr. Clark operates the ranch, Mrs. Clark operates the bees and proves to be a skillful operator. This apiary was started about six years ago, from two colonies that were dug from the rocks above the ranch. Being novices in the business, the bees were first put into various nondescript hives; but learning of the better management in movable-frame hives, the swarms were properly transferred. After an increase of 57 swarms from 17, and considerable honey in one season, the bee enthusiasm increased, and the apiary now numbers 170, and the product this poor season was 10,800 lbs. Of course, they believe bee keeping pays, even in a poor season. Mr. and Mrs. C. belong to the class of hospitable Californians; their latch-string not only hangs out, but their door is wide open, and the weary traveler is always welcome. The nearest neighbors are two miles away, and one of these, a Mr. Button, with a poor season before him, commenced with 25 colonies; increased them to 50; sold some stocks, and secured 2000 lbs. of honey, a few colonies "giving down" at the rate of 200 lbs. each.

Down toward the west end of the range we find the apiary of Mr. Langton, an Englishman who came to California with barely a hope of saving his life from the serious inroads of consumption; but the climate has given him a measure of good health and hope for many years yet on this terrestrial ball. We found Mr. L. very busy hanging out the family washing, which showed a very helpful spirit toward the busy hands in the house. Mr. L., during this very poor season, has increased his bees from 33 to 62, and secured 5400 lbs. of honey.

HOW MR. LANGTON PREPARES KEROSENE-CANS FOR HONEY.

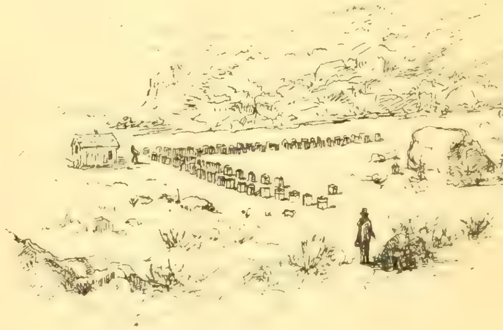
His honey is put into kerosene-cans; but if every one used the care that he does there would be no kicking from buyers. In the first place he takes the entire top from the can. This gives ample chance to discover any thing wrong in the interior. If it is rusty it is rejected; if not, it is thoroughly cleaned, and a new top with screw-cap is soldered on, and the can is practically as good as new, and at much less cost. The way many prepare kerosene-cans for honey is, to put a patch over the oil outlet; put a screw-cap and handle on what was the bottom. That puts the brand that betrays the can at the bottom; but it is a kerosene-can all the same, and not so commendable a plan of transformation as Mr. Langton's. A little less than a mile from Mr. L.'s we found another bee-keeper, Mr. Bloom. His first colonies were also dug from the rocks and planted at the base of the mountain, where they had grown to a good apiary; and 72 stocks in the spring of this very poor season had increased to 110, and given 11,325 lbs., or over 100 lbs. to the colony. This is the last apiary westward on the range, and the valley broadens out here and stretches away off toward Los Angeles. The yields of honey at this point and further down the valley were better than upon the eastern end of the range.

Mr. Bloom has now made arrangements to sell 100 colonies next season for $1.00 per colony, the purchaser to furnish the hives. He puts in no *ifs* and *ands* about their wintering, as he is quite sure of that part.

From this point a lone and deserted cabin is pointed out on the plain, where a lone bee-keeper was murdered and his body cremated under the burning material of his barn. So, lone bee-keepers do come to a bad end; but it is where perhaps enemies follow up their victim to avenge some wrong.

We now pass around the mountain and work our way up the south side; and a young man, Mr. Rance, from 25 colonies in the spring increased to 50 and secured 3120 lbs. of honey, which is not bad for a young man during this poor season.

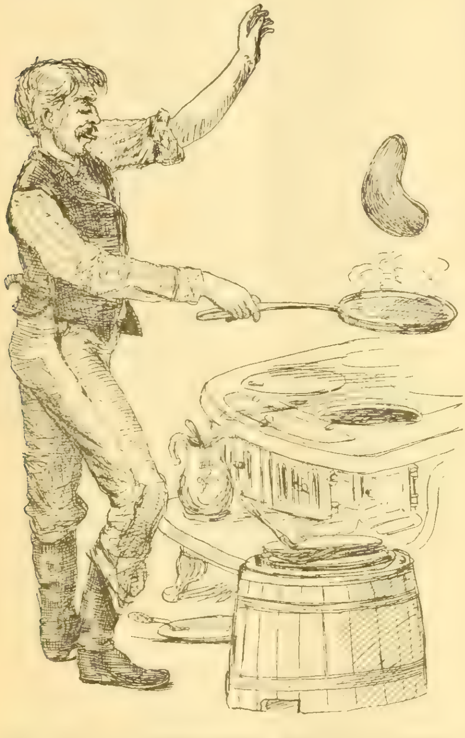
Another hitch along the base of the mountains, and we enter a very rocky and cup-shaped canyon; in fact, it is almost an amphitheater, with its abrupt rocky walls on three sides. Here is an apiary of 115 colonies, owned by our friend Wilder, of Grayback and watermelon fame.



H. E. WILDER'S APIARY IN WILDER'S CANYON.

Mr. Wilder searched for a long time to find a location that would fit his name, and finally succeeded. The sketch shows that stones abound, both above and below, and of a size to suit the most enthusiastic admirer of stones. In the rocky pass above the apiary it is Wilder's wildest, where rocks seem ready to roll down of their own accord. The cabin, as shown in the cut, is about as large as the big rock shown at the right, and is located near an unfailing spring; and upon a day when the mercury gets to the 100 mark it is wonderful to see the steady stream of bees that pass the cabin for water. In this rocky retreat Mr. W. has, in this season of uncertainty, taken 9120 lbs. of honey, and seems to have no appearance of the blues.

This retreat abounds in small game. Both rabbits and quail can be shot from the door of his cabin. As our friend is an expert cook in all of its departments, quail or rabbit on toast is served in the most epicurean style, and the California flap-jack act can be performed to perfection.



MR. WILDER PERFORMING THE CALIFORNIA FLAP-JACK ACT.

Mr. W. is a skillful taxidermist, and samples of his handiwork are visible in the shape of rare specimens of California birds. The only missing links in the chain of his enjoyment are a helpmeet and a generous patch of watermelons.

Messrs. Helmer & Pratt have a flourishing bakery at Riverside. The Pratt portion of the firm devotes a part of his time to the cultivation of the busy bee. Near another spring that seeps out of the mountain is this apiary; 43 colonies in the spring increased up to 98; and 4000 lbs. of honey, secured as the product of this apiary, is sold to a great extent in the bakery. Both comb and extracted honey are produced. Speaking of selling honey in this way, Mr. Pratt said they sold for a little better price; but as it came in littles and went in the same way, they didn't feel the profits so much as when sold in a lump, and they could handle a roll of bills or a bag of gold. This season migratory bee-keeping has been practiced by them. The bees have been removed to the river bottoms with good results. A few colonies kept in the city put in some fine orange-blossom honey, some of which we hope will find its way to the World's Fair.

The nearest apiary to Riverside, on this range, is owned by Mr. Parks. His hives are among great rocks just above his ranch, and he has the reputation of securing the largest yields of any bee-keeper in the vicinity. This very poor season his yield from 65 colonies is only 6000 lbs. Three years ago he had a good season, and his 75 colonies gave him 33,000 lbs., or an average of 440 to the swarm. Mr. P. believes in a liberal use of foundation, and combs that get clogged with bee-bread are taken out and replaced with it. He believes in using a three-story hive, and wants a queen that will keep 10 frames filled with brood. His ranch and orange grove, however, encroach so much upon his time that he thinks of disposing of his bees in a year or two; but, speaking reflectively, he said if we have another season like this California will lose its reputation as a large honey-producer.

Mr. Samuel Ferguson, who was with us on Grayback, owns the next ranch and apiary, and, like Mr. Wilder and the Rambler, he is a lone "bach." He has a cosy cabin enbowered under eucalyptus and pepper trees. Water is developed in the canyon above, and a reservoir is nearly completed to collect water to irrigate the ranch. The apiary numbers 215 colonies. The hives are in two double rows. A track is laid between the rows, and a car is used to run the combs to the extractor. The hives are covered with a framework for shading them in hot weather. The shades were not in place this season, owing to the short yield of only 11,000 lbs. Mr. Ferguson seems to have every thing ready for a bird in his cage, but the birds around the cabin seem to be mostly quail.

A little apiary, owned by a consumptive, and another of seven hives, complete the circuit of the mountain, and we find on the seven square miles 1287 colonies in 14 apiaries, counting both great and small. The total amount of honey sold was 76,500 lbs.; and although the bees were on the seven square miles embraced in the mountains, their field of operations was on valleys ten miles wide. The sources of nectar were sage, orange, wild buckwheat, hoarhound, sunflower, and wild flowers in profusion. Excepting the temperature, which was up to 100°, I had a very pleasant journey, and some thrilling experiences which will next be duly recorded by the RAMBLER.

COVERS TO DOVETAILED HIVES.

INTRODUCING; HOW THE QUEEN USES HER STING.

The cover of Dovetailed hives of your make is not good enough, for it catches the rain and moisture, and will lead it right into the hives. If the top were made exactly like the bottom it would be an improvement. I for my part would have it just two inches wider, and have end and side strips to run down about one or two inches over the body of the hive. I had extra gable-end covers made for all hives, and thus have a better shade in summer and a dry home for bees during winter and spring.

Some time ago you stated the different views of bee-keepers on the so-called raking of bees as a sign of swarming, etc. It means a thunderstorm and nothing else.

Queens do sting, if they find chances in their favor. During last year I experimented in the following manner: One queen was left with a number of her own bees in a Benton cage several days. Then I removed the bees and gave one bee from a strange colony. It instantly attacked the queen, but was very quickly killed by her. One queen killed as many as six bees. A virgin queen also fought for life. Put in many bees and the queen will not fight at all. These experiments are in accordance with the laws of nature as noticed with other animals that are known as fighters, and why not with the bees? If the queen sees a chance of success she will fight the enemy, be it ant, bee, or any thing else; but why should she fight if a dozen of daggers are ready for her?

During last winter I made another observation of value to some of your readers. Instinct (and nature) is certainly a great thing with animals. I keep message doves. In November the cold spell endangered the young homers, so I placed some in my room. When six weeks old, a second pair, with only the mother, was caged. One fine day the mother-nurse escaped from the cage and flew out of the open window, home to the belfry. Then I took one of the youngsters of six weeks, and placed it with the two younger cousins only five or six days old. The first hour was one of astonishment, the second of admiration, and the third, motherly love, as of old, and the two little pets were fed more than any pair will feed their young. Ever since, I remove the young as soon as they show signs of feathers, and place them with such an extra nurse. The lesson is a great one. Kindness toward fellow-creatures is a natural law. With animals, instinct tells them how; with human beings, the intellect, God's great gift, tells us how to show charity to those in need.

One word about introducing queens. Give the queenless colony a new hive and new bottom-board; and then place the cage, with new queen, as per directions on your Benton cages. This will greatly insure success. Another way would be to have a wire screen in shape of a wide frame, wide enough to cover a comb. Place a comb with hatching brood in this wire cage, and let the new queen loose on it. Place the screened comb in the center of the colony two or three days, and all will be done well. This plan has only one advantage; i. e., the queen will begin to lay at once, and this is one great success. I had one that came from Maine; and before 15 minutes she was at work laying eggs. To have her in the small cage, and let bees release her, would have retarded the work 24 or 48 hours. Such a screen cage can be made by any one who can handle carpenter or similar tools. You could keep them for sale for such as are unable to get them at home.
P. STEPHEN STENGER.

St. Meinrad, Ind.

[We can make the cover just as you want it, side strips and all; but that would destroy the very feature which so many prize—that is, the facility for *sliding* the cover on to avoid killing bees. With the non-burr-comb frames of to-day, this feature is a valuable one indeed. If you are careful in putting on covers you will not need any side strips. Hundreds of bee-keepers will testify to that. Moreover, the bees, when left to themselves, will propolize points of contact between the upper edge of the hive and the under side of the cover so perfectly that no rain can beat in. Propolis (that great bugbear of bee-keeping) right here does a good service. It not only keeps the top of the hive tight and warm, but it prevents the covers from being blown off by every little wind, and thus renders unnecessary the use of clamps or hooks to hold the covers on. Of course, if you use enamel cloths, or any kind of covering over the tops of the frames, the board covers will have to be fastened down, and then it will be quite necessary to have the side strips so as to make practically what is known as the telescopic cover; but when one is used to the plain cover over non-burr-comb frames, he can not but wonder *why* any one would want the extra cloth or covering.

With regard to the washboard act on the part of the bees at certain times in front of the entrance (raking, as you call it), we can not believe that it signifies any peculiar phenomenon in nature, either of swarming, thunderstorms, or any thing else. We have observed it at all times when the bees had nothing else particularly to do, without any subsequent swarms or thunderstorms. It is our opinion that the bees do that simply because they have nothing else to do; and in the same way they will gnaw at sprigs of grass, small weeds, etc., that stand in the way of the entrance. "As busy as a bee"—if they can not do one thing they will do another.

It is not denied in the text-books that queens sting rivals, and, occasionally, workers; but it is indeed very seldom that they sting a human being; but they have been known to do it in rare instances, and this brings us to a case that perhaps we have never mentioned. Some years ago we had an old hybrid queen in one of our yards that we could let right loose in any hive. If the bees commenced to grab hold of her she would simply paw and fight them like a wild tiger; and instead of the bees intimidating *her* she intimidated *them*. We used her repeatedly for giving eggs and larvæ to colonies that were short; but we never had any other queen that we could use in a similar way. She was only a hybrid, and not worth much, and we let her loose in a great many different colonies without even the formality of the ordinary methods of introduction. If we remember correctly, she simply died of old age. Such a queen (and they are very rare indeed) would be valuable in many queen-rearing apiaries; because it is easier to "drop" brood in this manner into a colony rather than to go and hunt it up of the right age from some other stock.

We very much question whether the new hive or new bottom-board had any influence in the matter of introducing. On the contrary, the less the internal arrangement is altered, and the less the routine of affairs is interrupted, the better will be the chances of the queen being introduced, other things being equal. The wire-cloth cage you mention is used by quite a number of practical bee-keepers—notably, J. F. McIntyre, of Fillmore, Cal. We know of no better cage for introducing; but it is good only for that purpose and for nothing else. It is a simplification of the old Peet method used so successfully two or three years ago, but now abandoned, because a more successful *mailing*-cage, as well as an equally good one for introducing, was devised.]

PLANTING BASSWOOD FOR HONEY.

J. A. GREEN RECOMMENDS THE PRACTICE; GIRDLING TREES.

I have always opposed the planting of special crops for honey, and I do not think that such a course can ever be made profitable. But there are times when, in planting, we may do so with an eye to the honey that the crop will yield. One form of this should be encouraged by all who have an eye beyond the immediate present. The planting of basswood-trees for shade wherever shade-trees are needed should be encouraged by all possible means. As a shade-tree, the basswood is entirely unobjectionable, and has many points in its favor, considered aside from its value to the honey-producer. Of its great value to the latter it is unnecessary to speak. There is probably nothing that will produce as much honey from a given amount of ground as basswood; and, once established, it will grow for many years without attention.

I noticed something last summer that was interesting, and may prove to be of some practical value. A year ago last June I went to the woods to get some basswood bark to use in budding roses. The bark cut at this time, and soaked for several weeks in water, splits into a number of thin layers of very fine, strong fiber, useful for budding as well as many other purposes.

I went to a place where basswood-trees had been cut eight or ten years before. The sprouts around the stumps had grown up to a considerable height, and many of them were four or five inches in diameter. Selecting a smooth sprout I removed all the bark from it for a distance of about three feet from the ground. Last June, a year later, I went there again for the same purpose. One would naturally suppose that the sprout that had been girdled the year before would have been killed by the operation. The bark, as I said before, had been entirely removed for a space of three feet or more. There was no new growth of bark over it, and the entire surface that had been exposed seemed perfectly dry and seasoned for half an inch or more from the outside; yet the sprout seemed to be growing and thriving just as well as the others from the same stump. What was particularly remarkable, though, was, that *that sprout was covered with blossoms*, while none of the other sprouts from the same stump had any blossoms on at all.

It is said that apple-trees may be brought into bearing much sooner by girdling, without injury to the trees; and I know from my own experience that girdling grapes causes them to produce earlier, larger, and finer fruit.

This opens up a way of great possibilities. It might not pay to set out trees and girdle them all; but it might pay to set out a double number and girdle half of them, with the expectation of removing those girdled in case the girdling injured their growth. Where there are sprouts from the stumps of trees that have been cut for some years, I think it would certainly pay to girdle a part of them. If in this way we can have our basswood-trees blooming again, or if we can hasten the blooming of young basswoods by several years, it will be a great gain, and may be of great value in some localities.

It is probable that the removal of half an inch or so of bark would have the same effect, and that this would grow over again without any more injury to the tree than the maple-tree receives from the yearly tapping. I have girdled some more trees, and shall watch them with interest next season.

WHY DON'T THE BLOSSOMS YIELD HONEY?

The season of 1892 has been to the bee-keeper of this locality one of abundant promise, with a most plentiful lack of fulfillment. White clover abounded, and the copious rains of the spring and early summer seemed to be just what was needed to get it into good condition to yield honey when once we should have that hot weather that seems to be essential to the secretion of nectar. But the flow from this source was at no time heavy; and when it closed its brief career, but few colonies had done much more than to fill up the empty cells of the brood-chamber. Basswood bloomed freely, and I confidently looked for a good yield from that source; but the blossoms were visited but little by the bees. I think I never before knew it to be so neglected when there was an abundance of bloom. But although our hopes for a good yield of early honey were thus dashed, we did not by any means despair. Had not the superabundant rain left hundreds of acres unsown and uncultivated? This was just what was needed for a good crop of heartsease. The heartsease grew and thrived; and when its blossoms began to give their rosy hue to stubble and fallow land, and fringe the fields of half-grown corn, it seemed that the prospects of the bee-keeper were never brighter. Again the scent of newly gathered honey filled the apiary. The first set of extracting-supers had been filled, and a start made in the sections, when a heavy rain, followed by cool weather, put an end to honey-production. Heartsease usually yields honey until it is killed by the frost, but this year the blossoms do not seem to open, and the acres upon acres of it are yielding no honey since the cool weather began. In other years I have known the bees to gather considerable honey from it at times when it was almost too cold for them to leave the hive; but we have had some quite warm days lately that seem to have no effect in starting the secretion of nectar again.

The experience of this year shows so plainly that the secretion of nectar does not depend simply on the amount of bloom, but upon climatic and atmospheric conditions that are entirely beyond our control, that it seems to me that any attempt to increase the yield of honey by planting special crops rests on a very uncertain foundation. The three principal sources of honey in this locality have grown and bloomed abundantly this year, yet have yielded little or no honey. One might plant crops of honey-producing plants for several years without getting any return from them whatever in the way of honey. Any attempt to increase the yield of honey by planting a crop that will not be profitable aside from the honey that is expected, is liable to result in failure. Of course, there is no reason why waste places may not be profitably planted to something like sweet clover, that requires no cultivation, and will seed itself and grow from year to year. Great caution should be exercised in this, though. People are apt to be very suspicious of any thing planted in this way, even though it may be harmless. The innocent sweet clover is persecuted as a deadly enemy, when burrs and other noxious weeds are allowed to go unmolested and with scarcely a thought.

Dayton, Ill. J. A. Green.

[I think that, in your case, friend Green, the trees had been growing with too much vigor to produce bloom. One remarkable feature of the basswood is, that, when you cut a tree down for timber, the strong vigorous roots will at once send up sprouts that will very speedily take the place of the original tree. These sprouts grow, of course, with great vigor, and on this account they seldom blossom until of considerable size. The matter has been referred to in these pages. Your girdling, however, proved to be just the proper sort of check on their rampant growth, hence the blossoms. Strong-growing trees often survive girdling, just as you describe; and the practice of girdling to promote fruit-bearing has been in vogue for many years. I agree with you, that the basswood seems at present to furnish a larger quantity of honey than any other one plant that has been brought to our notice. I do believe that the planting of basswoods for shade-trees, and, very likely, for timber, will be the means of keeping up our industry. Possibly our children or grandchildren will be the ones, however, to reap the honey crops. Our own basswood plantation has been out now 20 years. The ground is some of the poorest in this part of the State. Notwithstanding this, however, many of the trees are a full foot in diameter. They have not blossomed as profusely, as yet, as some other basswood-trees planted about the same time, or a little later, on the streets of our town. There are now a dozen or two of the latter that have been for several years as full of bloom and as full of bees as any tree I ever saw, either in the forest or fields. One tree in particular is now about 30 feet high, and its branches extend to a distance of fully 15 feet in every direction. This tree I helped to set out less than 20 years ago. The soil and situation are favorable.] A. I. R.

BOARDMAN'S SOLAR WAX-EXTRACTOR.

HOW IT WORKS; NO WAX IN THE REFUSE.

Friend E. R. Root: In your "Notes from the Bicycle," in GLEANINGS of Sept. 15, you jagged my memory in regard to the talk we had when you were here over the solar wax-extractors, or I should likely have forgotten my promise to test the residue, or slumgum, by rendering it over with sulphuric acid, and thus save, as you hoped, some precious dollars, more or less—enough to more than pay me for the trouble.

I had no expectations of finding wax in paying quantities, but I was just a little interested to know how well my solar extractors did their work. After procuring some sulphuric acid I looked up in back numbers of GLEANINGS the *modus operandi* of rendering wax by this process, and proceeded accordingly. Into a five-gallon stone crock I put 2½ gallons of soft water, and added a little over ¼ lb. of sulphuric acid. I then went to a barrel of the residue, the same that we examined when you were here, and from it I filled up the crock and left it to soak until next day, when I placed it upon the stove in the bee-house kitchen, and let it boil for some time. Then I let it remain and cool gradually. The next morning I went to investigate the results. Well, now, how much wax do you think I found cooled in a beautiful yellow cake on the surface?

"Two pounds?"

"Well, no."

"One and a half pounds?"

"Hardly."

I was disappointed, and I am sure you will be when I tell you there wasn't any—no, not a trace of any thing that looked like wax. Let me say I smiled as I passed the solar extractors that morning, and said, kind o' softly, "That was a pretty good joke you have played upon us."

I have tried about all the plans for rendering wax that I have heard suggested or could think of, and I would always find in the residue, after it had cooled, more or less wax in little yellow particles dispersed all through the mass. I was never satisfied with such wasteful methods. The solar extractor gives the only method of rendering wax that satisfies me.

It might not be out of place to say here, the larger extractors give the best results. I should prefer them still larger than I now use. I think this is all the secret of my success with them (having them large). I can't see how the small ones that are used by so many bee-keepers can be made at all practical. The only imperfection I meet with in this method of rendering wax is, it will not work without sunshine. In this respect the solar extractors are somewhat like A. I. Root's old windmill for power, which would go only when the wind blew.

I shall continue to use this wax residue for fuel, the only thing for which it has any value; and for this purpose, and especially for kindling fires, it has no equal. When the thrashers came this fall I had no coal for them to steam with, as they came unexpectedly; so I took out some boxes of slumgum, and said to the fireman, "Try that." He did try it, and up went the steam; and he said it beat any thing he ever used to fire with before. "Now," said he, "I shall have a good story to tell when I am an old man, how I once fired an engine with bee-comb.

H. R. BOARDMAN.

East Townsend, O., Oct. 7.

[We give you the reputation of being a careful experimenter, and the credit of generally being right in your conclusions; but in this case we are not quite ready to give up yet. The very fact that this "slumgum," or refuse, makes a fire equal to or better than coal, for steaming up a thrashing-boiler, is evidence to us that there is considerable money left in it, in the shape of unrendered wax. To back our assertion we propose that you ship us by freight two or three bushels of that slumgum; and whatever wax we can get from it by the use of sulphuric acid, if any, will be credited to your account, and the result either way will be reported through these columns. We may have to give up, but our experience with our own slumgum says no.]

FEEDING BEES TO STIMULATE.

A NOVEL FEEDER MADE OUT OF A QUART CAN AND A WIRE NAIL.

We have kept bees for fourteen years, and have had our share of trouble in spring feeding, that is, between apple and clover; and if the latter be of short duration, the feeding of a few pounds may make the difference between a fine lot of surplus and a complete failure. The Heddon wood feeder worked well, but was too bungling and expensive for spring use, and became so foul that we were glad to burn them.

To make feeding a success, you must be so prepared that, within one day or night, you can have feeding in full blast on every hive, be it raining hail and pitchforks. For three years we have been successful with the following:

Having 70 colonies we bought 70 one-quart tin cans. In the bottom of these cans, with a smooth awl, and from inside out, we punched a hole large enough to drop a ⅝-inch flat smooth-headed wire nail in easily, but leaving a good catch for the head. All our hive boards have a two-inch hole in the center, covered with a block which becomes glued, and these give us no trouble when not in use. We place these cans over these holes; carry a faucet can of 70 lbs. of honey to the center of the yard, and, by the use of a large coffee-pot, we have, in 20 minutes, 70 colonies fed each a pound, more or less, as desired, and not see a bee, nor chill one either. The wire nail makes the feeder work automatically. By looking into the can after feeding, you will see the head of the nail shaking about. This is caused by the bees. It regulates the flow, and keeps any sediment from clogging the feeder.

I just tried two cans filled with water. They held the water for hours; but on agitating the nail, as the bees do, the water ran out in a little stream. Fortunately we have had no fall feeding to do for some years, but we think one can would do for each hive if fed day and night after each feed at night, without stimulating breeding. By bending one edge of the nail-head up it will make more of a force feeder.

F. S. COMSTOCK.

North Manchester, Ind., Sept. 13.

[At first we thought our correspondent had struck on the old pepper-box feeder (a very good one, by the way); but by reading more carefully we discover that he has a feeder on an entirely new plan. We have no doubt that it will work very nicely, and do as he says.]

LADIES' CONVERSAZIONE.

SULPHURING WORMS IN COMBS.

MISS WILSON TELLS HOW THEY DID AND DIDN'T SUCCEED.

After reading, on page 664, Mrs. Axtell's trouble with extra combs, I thought I would report how we came out with ours. After hanging them in the shop cellar we let them alone, except occasionally to look at them to see if there were any worms at work. They hung there a good many weeks without showing any signs of worms. I began to think they were not going to trouble, but no such good luck. Upon taking down a frame for examination, one day, a good-sized worm was discovered; and by looking further, quite a number were found, some of them full grown. We concluded it was high time to fumigate. After a worm is nearly or quite grown it takes considerable sulphur to kill it; so we concluded to use enough to make a sure thing of it. We got 20 lbs., put it on the cellar bottom in four dishes, set fire to the sulphur, and shut the door. The rooms above were blue with smoke, and smoke issued from every crevice, so we concluded it was burning all right. We did not open the door for two days, when we discovered the fire had gone out in two of the dishes. On weighing what was left, we found that only 8 lbs. of sulphur had really been burned.

I was very anxious to find out whether the worms had been killed or not, and it was with no little interest that I examined the combs; and when I came to a big worm all shriveled up and dead I gave a big whoop of delight and called Dr. Miller to come and see that it was really and truly dead. We had neither of us felt very sanguine about the large ones being killed, as our previous efforts had not been entirely successful. But there was no disputing the fact now. We never found even one alive. We left the cellar-door open, and it has stayed so all summer. Combs have kept nicely, and no more trouble about worms. I don't believe I'll ever worry so again about keeping combs as I did this spring.

Mrs. Axtell, don't you believe if you had hung your combs overhead, so as to have them further apart, the smoke would have got at them better?

From past experience I should say there is no use to smoke lightly when the worms have attained any size, and one heavy smoking is worth a great deal more than several light ones. We used about one pound of sulphur for every 275 cubic feet, which varies very little from the amount recommended by Mr. Doolittle. Another point of importance, I think, is to keep the room closed a day or two so as to retain the smoke as long as possible. We might have smoked them earlier, before the worms got quite so large; but by waiting as long as we did, all eggs were hatched, and no subsequent fumigation was needed.

After writing the above I went over to the shop cellar to count the frames we had left hanging up. I thought we had used about two-thirds of them; but I found we had only 260 left. In counting them I found 5 combs in one place and 2 in another that had, by some means, been pushed up close together, and they were fastened solid together with cocoons and worms, and were utterly ruined, so I shall have to take back what I said about there being no worms. None of the other combs were affected, which is very strong evidence that placing them an inch or two apart is very essential.

Marengo, Ill., Oct. 5. EMMA WILSON.

UNCLE TOM'S CABIN OF SPECKLED BEAUTY.

TWELVE MONTHS OF POULTRY LIFE; AN INTERESTING CHICKEN-STORY FOR THE JUVENILES, BY MRS. AXTELL.

CONTINUED FROM P. 735.

Soon the bright summer wore away, and the yard was filled with chicks, big and little. Cold weather came on, and our coops were not very warm; and as mistress had poisoned the rats, she did not need to close the coops at night, so now we were often very chilly, especially when the cold wind blew, and rain beat in upon us, as our coops leaked badly.

Master Brown came one night and caught ever so many of us to sell, as he said we should all be sick from the exposure, as some were already dying of bowel trouble caused by the cold. Some said it was cholera, but it was all caused by taking cold.

Master Williams advised giving us sharp grit. Pounded crockery was good, he said; and he told us to put two tablespoonfuls of copperas into a pail of water for us, if many were sick; if not very sick, one spoonful to the pailful would do, removing all other water, so we should be compelled to drink the copperas water. Mistress said she had tried so many different things that she had almost come to believe nothing would do any good; but she did try the copperas, and it helped us right away. Then we were all gathered up, what were left of us, and put into a warm hen-house, as master Brown had built a new one, because he said we were fine stock, and cost too much to let die in cold weather for want of proper protection. He sold off the homely chicks, and kept only what master Williams pronounced perfect specimens. As I had but one foot, I should have thought I would have had to go; but I had been given to Clara, and I was pronounced perfect in all respects, except the loss of one foot.

The new poultry-house had large glass windows in the south that could be slid to one side in the summer time. The space was covered over with wire cloth, so that we might not break the glass; and when slid to one side it would not let rats and other vermin in. There were two doors, one in the south and one that opened into the old hen-house, that was not very warm. When our house was too warm, the door into the old house was opened, which prevented the cold winds from out of doors blowing directly upon us.

I wonder whether people know how thankful poultry are for dust baths in winter time. Well, every evening Clara came out with a large panful; and, after sweeping our floors, she took the shovel and threw ashes all around. This absorbed the moisture of the droppings, and made it easy to be swept next day. She kept a shallow box full for us to wallow in, or, to be more polite, to bathe in, for that is the way we kept ourselves clean and healthy.

We soon became very healthy in our warm sunny house; and with such good care as we were getting of late, through the influence of master Williams, we were a very happy lot of chickens. It was plain to be seen that mistress was proud of us, for we were pure-blooded, handsome chickens. I heard her tell a neighbor, who was lamenting that she had no good place to keep her chickens in winter, that she felt so bad for her chickens the winter before, that she lay awake at night, and cried to think of *their* sufferings, as many of them had frozen feet and bills, and frosted combs; and she told this neighbor that, if she would get pure-blooded chickens, her husband would feel so proud of them he would build them a nice warm house. That was what induced farmer Brown to build her a hen-house. She had asked him many times before to build one, but he had never thought it worth while to do so until she had gotten a nice flock of pure bloods.

Another trouble was coming upon us. Very many of us were taking sore throats. Mother Biddie said she was sure it was because master had made our perches so high that we could not fly up to them easily. As we were a heavy breed of chickens we flew up part way, and threw our heads over, and hung and struggled before we were willing to let go and drop down, to have to fly up and try it over again. Master had forgotten to put up ladders to hop up on. What would have been better still would be to put the roosts so low down that we could easily hop up on them without ladders.

Mistress said she did wonder what the matter was with us. As we wheezed and breathed hard, she felt of many of us; but as none had sore necks she believed it was the roosts, and she gave master no peace until she got them cut down and made lower. A few of us died, but the most of us got well; but mother Biddie was a big heavy hen, and it went hard with her. She fairly squealed one night when she breathed, and the next morning she lay dead under her perch.

Mistress felt very bad about mother Biddie's death, for she said she was such a nice hen. She was a good mother to her chickens, as mistress could put chicks of almost any age with her, and she would take them. She was not like another hen whose chick got hurt, and which was kept in the house a few days in a box. When it was returned, and fastened in the coop with her at night, she picked its skull bare. But it recovered, though they had to keep it in a box for a while. As it was a nice large chicken, mistress nailed some pieces of carpet in a box along the top of the box, and let the carpet hang loose. The chick would run around outdoors in daytime, and return to its brooder-box at night. Mistress kept several such brooder-boxes, so when the mother-hen left her chicks when they were too small they could be set in their coop, and the chicks would run into them at night and keep warm: and when the hens were inclined to stay with their chickens too long, mistress would take them away and shut them up a few days, and then they would soon go to laying again, and the chicks would be better off in the brooder than with her.

Master put a square tube, which he called a ventilator, in the middle of our house. The bottom nearly reached the floor, and the top came out at the roof. One night some little animal came into our house and killed three of us by jumping on our backs, and, grabbing us by our necks, sinking his teeth into our throats until we were dead. Next day, master said the doors and windows must be closed tight, as something was killing the chickens. The next night seven more of us were killed. I escaped; but, oh it was horrible to hear the other chickens squall and drop down on the floor, and to know they were being killed, and that my turn might come next, as the hen-house was so far from the house no one could hear us! When mistress Clara came out with our nice warm breakfast, how frightened she was to see so many of us lying around dead! She went to the house and told her mother that seven more were dead. Mistress came out with her, and they hunted long for holes, and fixed up very small ones, until she said that not even a mouse could get in. But that night the same little animal came gliding down the ventilator as usual. How his eyes did gleam, like stars in the moonlight! That night was the most horrible of any in all my life. He actually caught and killed fourteen of my brothers and sisters. In the morning master Brown came in and said, "Oh! this is too bad, to see so many of those nice large chickens dead — fourteen of them this time." He gathered them up and put them into his bushel basket, and it well nigh filled it full. Mistress nearly cried, she felt so bad — twenty-four killed in three nights. Master said he believed the animal came down the ventilator. He went immediately and tore it out, so none of us were killed by the weasel after that, as that was where he came in. I knew it all the time: but you see I am only a chicken, and can speak only "hen talk," or I would have told master. Master Williams said there were enough of us left for a hen-house of that size. There had been so many of us before, that, on warm nights when the doors and windows were closed, we could hardly get our breath. I am sure we should have been sick if they had not been so careful to sweep out our house nearly every evening; and after sweeping they threw coal ashes under the roosts. That caught the droppings, and made it easy to sweep.

We all learned to love little mistress Clara, as she was taking better care of us since her papa gave her that nice poultry-book and subscribed for a poultry-journal. As the weather was often very cold now, we very much enjoyed the nice warm breakfasts she so often brought us; but she generally gave us full grains of corn at night, as she said her book said that whole grains remain longer in the crop, and so we should not get so hungry for something to eat during the long winter nights. What we very much liked was the stews she sometimes fixed up for our dinner, made of meat and vegetables cooked together, and thickened with meal and oat flour, and seasoned with a little salt. Oh my! how we did lay eggs! It was enough to make anybody smile to see such nests full of fresh eggs, in January and February, when the price of eggs was high. We just cackled and cackled; and a happier lot of chickens you never saw as the warm sunshine poured in through the great windows. Little mistress said we seemed to say, when we cackled,—

Cut-cut, cut-at! cut-cut, cut-at!
  I lay three eggs every day;
And yet I have to go barefoot,
  Go barefoot.

And the old Rooster, Robinson Crusoe, said, "Sell your eggs and buy some shoes, and then you won't have to go barefoot."

MRS. L. C. AXTELL.

Roseville, Ill., July 5, 1892.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

ANOTHER PROPOSED HONEY AND APPLIANCE COMPANY.

Our attention has been called by several subscribers to the prospectus of a company which it is proposed to form under the title of "The Apiary Products and Appliances Supply Association, Limited," with a capital of 20,000 pounds in 1-pound shares. According to the document before us, "The company is formed for the purpose of purchasing and carrying on the business of Messrs. A. & H. Timberlake, honey and wax merchants." After the failure of former attempts to establish successful companies on the above lines, even when guided by practical men, this last attempt shows an amount of hopefulness on the part of the promoters in which we can not share, especially as, with the exception of Mr. Timberlake (as the manager), none of the directors, so far as we know, have had any knowledge of bees or their products. We therefore recommend that our correspondents make full inquiry before investing.

We have not been favored by the promoters with a copy of the prospectus, and it is only by favor of certain of our readers that any information regarding the proposed company reaches us. It is also noticeable that, although the prospectus contains a statement that a contract has been entered into between certain parties, no names are given, nor does the date of the contract referred to appear.—*British Bee Journal*, Sept. 15.

MORE OF THAT "WHAT LOOKS LIKE FOUL BROOD."

I see in GLEANINGS that you have that disease that looks much like foul brood. I have had the same experience with it. Last year I had several cases of it; and as I was looking among bees that belonged to the neighbors I found the same thing, but not so bad. I had one case that was very bad last year in the fore part of the season, and in about two months it disappeared, and I haven't seen it in that colony since. This year I had one case of it, but it is all gone now, and the colony is strong. I am sure it is not foul brood, for I am acquainted with that. I never could tell what the cause of this disease is. I never tried to cure it, and it always went away of itself. While it lasts it weakens the colony very fast; but when it disappears the colony soon builds up again. From what experience I have had with this disease I don't think it will spread among other colonies, or that it is very bad, except at the time they have it. E. H. TRUMPER.

Bankers, Mich., Sept. 26.

THE MINNESOTA STATE FAIR HONEY EXHIBIT.

We have just returned from the State Fair, and I want to tell you we had a grand exhibit—one that would be hard to beat in any of the States. Everybody who saw it said they never saw any thing so nice in the Eastern States or Canada. To get up such an exhibit right in the face of one of the poorest seasons that the State ever had, means energetic labor on the part of the managers. Our superintendent, J. P. West, labored with the bee-keepers of the State in season and out of season to persuade them to make an exhibit; and the bee-keepers of the State want a little space in GLEANINGS to thank him for the good work he did, as he did not get any other compensation. We had some photos taken of the exhibit. I will send you one. WM. H. BRIGHT.

Mazeppa, Minn., Sept. 24.

DR. MILLER'S ROSES; HOW TO RAISE THEM, ETC.

I have been interested in Dr. Miller's roses, and I should like to know how he grafts them. I wish he would please write a piece about it, and illustrate his manner, so that I could do so. I have succeeded in grafting apples, plums, and cherries; but as rose-twigs are small, does he practice limb grafting or budding?

My husband and family are much interested in GLEANINGS. I feel as if the sermons were worth the price of the book. They are so plain that we can understand and apply them every day of the week, and that is the kind of religion that does good in this sinful world.

I have lived on this farm over thirty years. We live one mile from, and in sight of, beautiful Canandaigua Lake; also in sight of the village of that name, which is famed in Indian legend as "Sleeping Beauty;" and, indeed, it is a beautiful village.

We were pleased with Ernest's writings about our State last year. We wish he might have stopped at our house. We could not have shown him a large apiary, but we could have refreshed him with food and water, and given him Godspeed on his journey. J. R. FISHER.

Rushville, N. Y.

[Thanks. We should have been very glad to call upon you had we known we were so near you. With regard to the roses, Dr. Miller is respectfully called upon to answer.]

NO REASON TO COMPLAIN.

I am happy to report, that, after all our spring losses and summer disappointments, bee-keepers in this section of country have no reason to complain, and long faces should be done away with, for the month of August filled many barrels with nice extracted honey. Many bee-keepers, who had invested largely in supplies, and seeing June and July pass by with bees in a starving condition, had almost been sinking in despair. The writer has secured, up to date, about 2500 lbs. of No. 1 extracted honey from 68 colonies, spring count, and nearly all colonies are supplied with sufficient stores for winter; and if Jack Frost does not visit us during September, quite a lot of nectar sweets will be realized, for bees are working finely on goldenrod and fall flowers; but those who worked their bees for comb honey missed it, for bees could not be induced to work in the sections.

STEPHEN ROESE.

Maiden Rock, Wis., Sept. 3.

WINE AS A BEVERAGE ON THE ISLANDS OF LAKE ERIE.

In reading over your Home talks in the last number as to boys and their search for beer, it reminds me of an investigation which I entered into on my recent and first and only visit to Put-in-Bay. I found wine, wine everywhere—every few feet—right out on the street and lawns, and indoors, and only one temperance place, and that a couple of tents, run under the care of the W. C. T. U. I went to those tents with a friend and called for lemonade, and was told that they had none. Inquiry showed that they were not allowed to sell any drink but coffee, tea, and water. Why? because, to sell such would interfere with the wine-trade! The W. C. T. U. could not rent a piece of ground if they should sell lemonade. Comment is unnecessary. On this, my first and only visit to Put-in-Bay, I could not help but arrive at the conclusion that it was a good place *to stay away from*, and to recommend others to do the same. I am told that the other islands have the same rule. Here is another fact: There is more wine sold on the different islands there as "native wine" than could possibly be raised on a third more area than they all combined contain. As nearly as I can make out, these are the facts.

Cleveland, O., Sept. 20. R. V. MURRAY.

[Well done, old friend. It is refreshing indeed to find that the man who makes the pictures for GLEANINGS is one among the little crowd who are hungering and thirsting after righteousness. It seems to me, friend Murray, that the W. C. T. U. needs a little lifting by some of the men-folks. As GLEANINGS goes almost everywhere nowadays, perhaps it may be the means of stirring up some good brother to come to their aid and to give them a little bit of ground on which to locate a lemonade-stand.]

A PROFUSION OF SMARTWEED.

The season has been a good one here so far as clover was concerned; but the bees were not gotten into shape before the honey crop, and, as a result, the supers are empty. Bees will winter well, for there has been the greatest profusion of smartweed bloom in ten years, almost all colonies laying up enough stores, and in some instances a little surplus.

Alexandria, Ind. E. E. Edwards.

My report for the past season is, 9000 lbs. from 100 colonies—a poor season in California.

Riverside, Cal., Aug. 12. H. E. Wilder.

RAMBLER.

What makes Rambler look so pleased? I see he has lost a tooth. Was it in climbing the mountains? Has he got a new hat? It looks like one, but he has the same trousers and umbrella. What's that he is holding in his hands? Oh, yes! a camera, and a book and pen to take the notes of travel. R. L. Rhodes.

Montville, O., Oct. 6.

Bees are working all the winter when not raining. Best report (authentic) last season, 640 lbs. from one colony. Honey, extracted, 6 to 9 cts.; comb, 12 to 16 cts.; wax, 22 to 24.

L. T. Chambers.

Melbourne, Australia, July 27.

NOTES OF TRAVEL

FROM A. I. ROOT.

THE ENCHANTED MOUNTAIN.

Long before we reached Maricopa (a station on the Southern Pacific Railroad where a short branch road strikes off into the desert to Tempe and Phœnix) I had fixed my eye on a strange and wonderful mountain away off in the east. It seemed to rise abruptly from the desert until it was well up in the clouds, and then there was a level space—a sort of "mesa" —on the top; and from near the center of this level space arose another smaller mountain, but it looked more like the turrets and battlements of some giant's castle than it did like the mountains; and this uppermost central peak was, of course, away up amid the clouds. As we struck off toward Tempe I felt sorry, for it seemed as if we were going away from this strange and grotesque mountain. But by and by the road changed; and as the mountain grew, and became larger and more imposing, I began to be greatly interested in it. By and by my curiosity would not permit me to keep still longer; and when a passenger informed me that the object of my attention was *Superstition Mountain*, I became as much excited as was the Yankee. You see, he had been asking a fellow-passenger a great many questions, because the latter had only one leg. The stranger finally turned to him and said:

"My good sir, I will tell you how I lost my leg if you will give me your promise not to ask me another question."

The Yankee readily gave the promise; but when he was told that the missing limb was "bit off" he probably felt a good deal as I did about the mountain. If I remember correctly, he did make answer something as follows:

"If I were not a man who *always* keeps his promises to the letter, I should feel very much like asking what sort of an animile it was that did the bitin'." Therefore I immediately ventured:

"Will you be so kind as to tell me, if you can, sir, *why* they call that wonderful mountain Superstition?"

"Well, I have never been there, but I have been told that, from time immemorial, the Indians refuse to go near it, much less to climb to its rocky heights. They give, as a reason, that strange noises are always heard around its base, and that those who have been bold enough to climb up, report that the noises increase as one goes up, and that strange flashes of fire flit from cliff to cliff. One who was more daring than all the rest kept on until he got up on to that turret that looks something like a winding stair, and there the thunderings and lightnings became so terrible that no mortal could stand it."

Of course, I was full of questions about Superstition Mountain when I reached my brother's; and I was greatly disgusted that they had all lived so many years right in plain sight of it, and not one of them had ever been so far as to get even to the base. In order to satisfy my inquiries they referred me to several personages about town, and by and by I became considerably acquainted with the minister, the doctor, one of the lawyers, and even a shoemaker who had been at least part way up the mountain. There were many different accounts of the wonderful noises, and of the Indians' superstition in regard to the strange peak. One informed me that the ruins of an ancient city were to be found away up on the summit. The shoemaker said there were cliff dwellings near there, for he had seen them; and an old ex-minister, who probably knew more about the strange surroundings of this weird country than almost anybody else, told me that Gen. J. C. Fremont, during the war with Mexico, had a regiment of drilled Mexicans and Indians. Once upon a time, to escape a fierce thunderstorm he ordered them into some of the numerous caves found in and about the mountain. They obeyed orders with fear and trembling, and an evident inclination to break away from authority. But Fremont was more than a match for savage superstition until a thunderbolt of startling vividness, followed by a fearful crash, shook the mountain to its very summit. This was too much for even the military drill of those children of the desert. First a small band broke away from authority. These, as soon as they dared, gave vent to the Indian yell of terror, and the whole regiment broke out into the drenching storm, and could never be marshaled together again.

Now, if my imagination in the above has supplied something which I could not exactly remember, I hope you will forgive me. Almost every one I invited to go with me to explore Superstition Mountain readily consented. Perhaps they were interested in my enthusiasm if not in the mountain; but just about as we had got the program finished, the women-folks set up a vigorous protest. I was an invalid, not yet accustomed to camping outdoors, even in that mild climate; and to go away off in the wilderness where we might suffer from a lack of food and water, or, possibly, be devoured by "wild beastes," was a thing not to be thought of. Besides, up around that turret it was all ice and snow. Yes, the snow was right before my eyes even while I declared I could not *live* if I did not investigate the caves and wonderful sights before going home. One after another the party backed out, and sadly and sorrowful-ly I was induced to give up my project until summertime, when it would be tolerably warm weather, even away up amid the clouds. However, Jess and I (that is what I call my brother) planned one day to drive the pony about ten or twelve miles in the direction of the mountain. Now, although it looked as if we might *walk* to its base in one afternoon, I was told that it was fifty miles away, and that it was fifty miles more uphill to reach the summit. As there was no beaten trail further than somewhere near the base, and none at all around and up the mountain, first one way and then another, to find an accessible path to the summit, we should have been obliged to carry provision and blankets, and feed for the horses for several days. Imagine how surprised, then, to find that, after we had gone ten or twelve miles toward it, the old mountain looked a good deal nearer than I expected, and ever so much more fascinating. Our good friend with whom we took our dinner, who had pushed an alfalfa ranch away off there alone by himself, declared that it was not more than 25 miles from where he lived. I was just reckless enough then to want to push off alone without provisions, water, or any thing else; but I knew it was not wisdom. But in the last few days I have been speculating as to whether my trusty wheel would not skim over the sands of the desert. If not, I want one made specially with a wide pneumatic tire—one that would operate something like snowshoes. Then you see I could make up my budget and spin off by myself and *explore* these hidden wonders, and get back to civilization before I — perished. I told my brother's folks when I bid good-by to Tempe, that I was leaving a great part of my *affections* there. When they began to look pleased, however, I told them that, much as I felt attached to that little family circle of relatives, to tell the plain truth said affections were hanging about old Superstition. Besides this mountain, the good old minister I have mentioned gave me a history of the wonderful country out toward Flagstaff, where we find the *real* Grand Canyon of the Colorado. There were cliffs there where you could look a mile straight down beneath your feet; and there is a natural bridge so large that there is a whole farm right on the top of it. Somebody said an old farmer had lived there all his life without knowing he lived on a bridge at all. But I think there must be a little exaggeration about it, for there is a hole down through in one place where you can look through and see the river below. Besides, there are springs there more wonderful than are to be found anywhere else on the face of the earth. A railroad is now in process of construction from Phœnix to Prescott, and then we can get somewhere without being in danger of perishing from want of food and drink. Now, if my ideas are wrong in regard to this wonderful Arizona region, perhaps some of our readers who live there will kindly straighten me out; but I do think it is too bad to live in a world so full of wonders, and find so many people who never knew any thing about it at all. It makes me think of the time of Columbus, when he was almost the only chap who had enthusiasm enough to explore the great unknown seas. By the way, do you know it is almost the 400th anniversary of the wonderful exploit of that intrepid adventurer? Oh! but I should just like to take Columbus by the hand and tell him how much I love and revere his name. If I just had *him* to help, but *wouldn't* we just explore old Superstition! Now, if you think I am telling yarns go and get your big map of Arizona, and see that great expanse of country covered by the title of "Superstition Mountains."

OURSELVES AND OUR NEIGHBORS.

In the sweat of thy face shalt thou eat bread, till thou return unto the ground.—Gen. 3 : 19.

The friends may remember that I had something on this text in a brief editorial in the last issue. But it is in a different line that I wish to speak just now. It is something that has been pressing itself on me for some time back, and yet I have neglected it and put it off. I have put it off because, if I take it up, I shall say something that will come nearer speaking ill of my neighbors than any thing, perhaps, I have said previously. It may seem so, and yet I wish to have it understood that I feel myself to blame; in fact, I try to believe that the larger part of the fault rests on "ourselves" instead of "our neighbors." I presume it is very likely that I have inherited a strong tendency to be uncharitable. My good old father was all his life demanding justice. He demanded, or, at least, he was inclined to demand, that his neighbors be just, honest, and fair; yes, and I fear he often felt inclined to demand that his neighbors be industrious and prudent; and as I grow older I find myself strongly inclined to get into the same rut. He worked hard for a living, and to bring up his large family; and when others about him did not work hard, and did not propose to do so, it was his natural disposition to wish to *make* them do so. If they transgressed the law, even in any little particular, his disposition was to demand that they pay the penalty. Some of you may say that this is right; but, dear friend, let me caution *you* about going out into the world demanding your full rights as you look at things, and full justice according to *your* point of view. You will be everlastingly in trouble. Let us now drop this part of it for just a moment.

For a good while back my dear wife has been saying that I give too much the bright side of things to my readers, especially in my efforts to show them how to get a living, and to make money. She insists that I have given too much prominence to the *pleasant* things about market-gardening and intensive gardening, and that I have not said enough about the *discouragements* and *difficulties;* and particularly has she urged that I should say more clearly and plainly than I have yet said, that it is next to impossible to make market-gardening, gardening under glass, or any of these kindred industries, profitable, where one expects to hire every thing done, and do little or nothing himself in the way of manual labor. And, come to think of it, the successful men who cultivate the soil, raise berries, or fruit of any kind, are almost always those who do the greater part of the work themselves, or with the help of their children, or, at any events, work right along *with* their men. There may be those who run a store or factory, and at the same time make it pay to raise crops entirely by the aid of hired help; but my impression is, that, if there are those who make a steady profit year after year in this way, they either have better "neighbors" than I have or than I have been able to find anywhere. May God help me from being uncharitable, or falling into a fault-finding and complaining spirit when I give to you in detail some of the difficulties in the way of making both ends meet with hired help. My impression is, that it is more difficult to make *farming* and *gardening* pay with hired help than it is to succeed in the various kinds of manufacturing business. If farming and gardening consisted in raising some *special* crop, as friend Terry does, a great part of the difficulties would disappear. But a good many people can *not* well raise *one* crop or special crops. They would get a great lot of perishable products on their hands, without a faculty or genius for disposing of them at a paying price. It is easy to *raise* crops—yes, great crops—that can not be disposed of for any thing like a decent price. Just now I presume I could pick several wagon-loads of wax beans; but I do not know of any place in the world where I could get even 25 cts. a bushel for the crop. A few months ago we got 15 cts. *a quart*, and did not have nearly enough to go around even then. Everybody is now tired of them: the same with turnips. I should be very glad indeed to get 20 cts. a bushel for my entire crop of turnips that are ready to harvest now; but I do not know where they could be sold. I have not the time nor brains to hunt up a market without having the effort cost me more than the turnips are worth. Of course, we retail them around town at a good deal more than that—say 15 cts. a peck, or 40 cts. if anybody wants a whole bushel. I asked the boys if they could sell any more if they offered them cheaper, and they said they did not think they could. It is the same way with summer squashes. In order to get them off the vines before they got too hard, we offered them at a penny apiece. The boys found a customer who wanted a nice squash; but when they told him he could have his "choice for a cent," he replied, "No, no, my friend! here is a nickel, and that surely is cheap enough. If I can't get the worth of a nickel out of it, it will be surprising." I mention this to show you some of the difficulties. But, on the other hand, we are getting very good prices indeed for our stuff as a rule—that is, if we don't raise *too much*. In fact, I would not ask for better prices, providing our markets were large enough so that they would take all that we happen to raise. The wax beans were planted with the hope that they might mature before frost, sufficiently for seed, and a large part of them have done so. We have had one pretty severe frost; but if we do not get any more for a week or ten days, my beans will be a paying crop. Summer squashes may also be utilized for seed to a certain extent. But this depends upon something that I am now coming to.

It used to be the fashion for boys to learn trades, but nowadays they don't do it. They just work for whoever offers them the most pay, first at one thing and then another; and the factories and other industries offer these untutored boys so much that I do not see how the farmer and gardener are going to pay such wages for untrained and unskilled help, and make both ends meet. Yes, there is one way in which the farmer or gardener might do it. He could take an untrained and unskilled boy right along *with* him; and while the boy is *by his side*, and sees all the time just what he is doing, if the boy really means well, and promises to be useful, he could earn his pay. But suppose you take the average boy, say fifteen or sixteen years old, and undertake to pay him 75 cents a day. I do not see how you could do it.

If my whole 20 acres could be planted to wax beans, and if that were the only crop we raised, I think I could teach the boy, without very much trouble, so he would know all about it, from getting the ground ready, to gathering the crop. I could teach him not to pick beans that were too thin and green, and also to avoid the other extreme and not let them get so old as to be tough. I could teach him not to set his basket down where nobody could find it until the contents were so wilted and dried up in the sun as to be worthless; and I could also teach him not to put into his basket a specked or spotted one, and not to get leaves, dirt, and rubbish; and I could make him understand that, to bring the best price, they must be as spotless and perfect as wax, for this is why they are called *wax* beans. But suppose, in order to get the two or three thousand dollars a year that our town of Medina will pay for garden products, I undertake to teach him just how to grow and handle *every* crop, all the way from asparagus, which heads the list of vegetables, clear down to turnips, which usually closes the catalogue list. The boy might be taught all the kinks and turns; but it would be like teaching him a trade, or taking him through college; and by the time he is taught so as to be an expert, somebody else would offer him 10 cents an hour, or 12½, or possibly 15 cents. Now, this sounds a little like complaining. It strikes me that it *is* a little on the other side that complaints are usually made. You may say, and very likely some of my boy readers will say, that wages are a good deal higher in our locality. I do not think they are, my friend. There are plenty wanting to work in our locality all the time. In fact, for years past I have been besieged, as I have told you, by those wanting places. A good many would offer to work in our locality for 50 cents a day; but these are the most expensive men and boys I have ever employed, with perhaps some few exceptions.

A good man or a good boy may sometimes start out to work for a very low price, believing that he will be able to make himself so appreciated that he will very soon receive higher pay. Oh how I do like to meet with such! But they are the exception and not the rule. There is more to be considered yet. This boy that you have, by months and perhaps years of painstaking, taught to be valuable, will, sooner or later, be taken from you suddenly. He may be sick; circumstances may call him away, even if somebody else does not offer him more pay. This is a world full of changes. Whoever goes into gardening or any other occupation must make up his mind to meet, and he must calculate upon, changes. The man who grows strawberries for a living, or whose strawberries make a part of his living, must be prepared to have his best man stop by sickness or accident in the height of the season. On this account it becomes almost necessary to keep on hand at the busy season a little more help than we really need. This is an expense, I know; but it is a little less expense than to see your crops spoil because you can not get hold of anybody who knows any thing about how to go to work to help you out of your crowd. There are pleasures and delights in raising berries, and in raising garden-stuff and crops. I have tasted them, and I know; but there are also trials and perplexities that must be met and borne. The curse that was pronounced upon Adam, is, in the language of our text, still in force—"In the sweat of thy face shalt thou eat bread;" and he who undertakes to escape or avoid it must pay the penalty in some way or other. The woman or man who proposes to go though this world without earning his bread by the sweat of his face, will, sooner or later, find difficulty and trouble. I have tried a great many kinds of business, and I have succeeded at least tolerably in several different kinds; but I have found the rule holds good all through. There *is* no excellence without great labor; and I think I would put especial emphasis on the word *great*. The class of people who think it is a fine thing or a grand thing to hire people and tell *them* what to do, instead of being obliged to do it himself, or to work for somebody else, are making a great mistake.

I thought, when I started out to write this, that I would tell you of some of the special trials that meet intensive agriculture. For instance, after you have got your crops all raised, if you do not keep a careful oversight you will be discouraged and disheartened every little while by finding something that is costing you more than you get for it, just in *gathering* and *selling* the crop. In the course of the year we sell a great many bunch onions. Perhaps there is no other one thing that sells so readily every day in the year, at a nickel a bunch, as green onions; but if you do not look sharp some boy will stop to play, or be so indolent about his work that it will cost you a nickel to pull a bunch of onions, peel, trim, and slip a rubber band over them. Boys who do this work usually get from three to five cents an hour; but I have known some of them (that seemed to mean well generally, too) who would manage in some way to put in an hour on one bunch of onions. You may say that this is the foreman's business, who looks after the boys. Well, the foreman was perhaps busy at something else or did not understand that he was to look after such things. The boy, too, needed teaching. His employer or some other kind friend should take him by the shoulder, and say, "Look here, my son, we get only a nickel for these bunches. You have been *so* long in getting *so many* ready for the market." If you do it in the right way he will straighten up and do four bunches where he formerly did one; and this sort of exhortation is needed all around. You may think it easy to go from one to another and do this sort of teaching. Perhaps one does not sweat very much in a *literal* sense in doing such teaching, but it wears on the nerves and vitality. It is like the work of teaching school. Somebody may say, "Why, Mr. Root, boys are not *fit* for such work as that. Set some good smart women at it—women who have had the care of a family, and know how to prepare stuff for the table, and to do it quick." Well, I have had a large experience with women of this very kind, and I know very well that this very boy's mother will sometimes bunch as many onions in an hour as the boy himself would in half a day. Perhaps she wouldn't cost more than *twice* what you pay the boy; but when she gets to be skillful and valuable help to you, she will want about 10 or 12½ cts. an hour. Other people, too, will find out that she is skillful and efficient, and the *money value* of every wage-worker, sooner or later, finds its level.

You may say that the illustrations I have given are only trifling matters, and that it is all a kind of five-cent trade, any way. True; but it is a cash-down trade; and it is sometimes better to have nickels, spot cash, than to sell crops for dollars that are not spot cash. And, by the way, let us find some of the difficulties where *more* capital and good *men* are employed. If you garden many acres you want a manure-spreader, a grain-drill, and other like expensive and to some extent complicated machinery. Can the average man be intrusted with such tools? I have owned two manure-spreaders. The first one was worn out and used up in a few years. This was because somebody or several "somebodies" were not careful. After the burning of our warehouse I purchased a new spreader—the best to be had, and picked one of my most careful men, and taught him how to use it. Very likely the first mistake came because the careful man was sick or off visiting, and somebody else had to be hastily instructed in the use of it. Every little while it would be run without proper oiling, unless I personally got out my pocket-knife and cleaned out the oil-holes, and made the oil go down to the bearings though the hole. Then I must go back to the store or office with my hands covered with black grease, and perhaps my clothes soiled. The new machine was, in three or four years, about as badly dilapidated as the old one, and I have groaned in anguish of spirit because mishaps and breakdowns occur with that manure-spreader so continually. Whenever we have a rainy day, the standing orders are for all hands to go into our large tool-house, clean up, oil, tighten up, and put the tools in order. If I am on hand when it rains, and can spare the time, we get a good deal done; but if I send somebody to give orders, even though it rains half a day or more, the next time we want to use a tool we are almost sure to have a big team and possibly a couple of men standing still until somebody brings a bolt or nut to replace one that is lost or broken. The history of our grain-drill, which we use for sowing the greater part of our seeds in market-gardening, is much the same. A good deal of the damage to our tools has been done by lending them. Some of the neighbors who hired them thought I was getting rich by charging them 25 or 50 cts. a day for the use of an expensive machine; but I am sure that what I received in that way has not paid for repairs. This is a dismal story, is it not? But the fault is largely my own. I have attempted so much that it has been impossible to look after it all. May God help *me* to reform. My neighbor *Terry* has a manure-spreader that has been used for a dozen years, with less than a dollar expended in repairs. Before he starts to use it he goes with his hired men and sees them oil it. Then he raises the wheels and turns them by hand, and the machine is never allowed to go out of the tool-shed until every wheel moves as free as air. Yesterday our manure-spreader was started, and I saw from a distance that the drive-wheel was *sliding* on the mellow ground. I hastened out into the lot, and found the reel that does the spreading could hardly be turned by hand. In my absence the machine had been left out in the rain. One of the boards had warped so as to press against the reel. Do you wonder we have breakdowns? Some of you may say you would not have such men around. Gently, my good friend. My men are good men; but the demands of our factory, and large business, call them from one thing to another, and into so many different lines of business, that it is next to impossible that they should do very much better than they do. Better undertake to do one thing, and do it well; *then* the sweat of your face will stand a better chance of bringing you your *bread*.

No matter how good your help may be, you have got to watch things and keep an eye on the minutes as well as the nickels. People who have *learned* how, and who can, if they have a mind to, work very rapidly, have a way of backsliding and degenerating, if the boss is not around. Now, I hope that my good friends who read this will excuse me if I seem to be complaining of my neighbors. I have known women who have brought up families, to go out into the fields to pick snap beans, and get the wrong variety—in fact, pick a great lot that were fit for nothing whatever. I have also known them to pick peas with pods about as thin as caseknives; and I have known men who are the *fathers* of families, to pick green corn before there was a kernel on the cob. Sometimes I would say, "Look here, my friend; how would *you* feel if somebody were to sell you some corn for dinner like that?" As I spoke I stripped down the husk. He did not reply at first; but finally, when urged, he said, with a smile, "I guess I should feel pretty mad." To those who pick the peas without any thing inside of the pods, after I had broken them open and shown the contents as above, the reply would be, "Well, I think I shouldn't like it very much."

In teaching people how to work, I often make a remark something like this: "My friend, the good book says that we must love our neighbors as ourselves. Now, if you would get pretty mad, or wouldn't like it very much if somebody were to sell you such peas or such corn or such snap beans, you must admit that you are not doing as you would be done by.* You say you did not *think*, or did not *mean* to harm anybody, and yet you have wronged me; and you *would* have wronged my customers (which would have been worse yet, so far as I am concerned), had I not happened around just in time to stop you." Such teaching and such exhortation help matters very much; but it must be done *over* and *over*. If you do not keep constantly in mind that John is off across the creek at work on the strawberries, and Henry is over the hill picking peas, and William in another direction sowing some seeds, and get around to all of them pretty quickly, you will have trouble and disaster.† If the person who is sowing the seed puts in too much you *may* have a job of thinning out that will cost almost what the crop is worth. If he does not put in enough seed, you must either transplant to fill up the vacant room, or you must let your rich, expensively fertilized ground lie idle—a part of it—through the height of the season. Our good friend J. W. Smith, of Green Bay, Wis., has about 40 acres in market-garden; and he, with the help of his boys, keeps busy from 50 to 75 hands, including women and children, in the height of the season. But he does not manage so as to have no waste or disaster either. Even during the brief hour that I went over his grounds, I saw several things that were going to ruin though neglect. In fact, one part of his wonderful plantation of currants came very near being eaten up by the swift-moving currant-worm. I wonder that his work does not wear him out more than it does.

"Well, Bro. Root, you are certainly going to give us a remedy for this state of affairs. You surely do not mean here in these Home talks to tell us of troubles and discouragements, and not suggest a way out." My dear friend, I should be very glad indeed to give you some encouragement. You know our country is just now having much trouble in discussing this very problem. The people who *work* think they do not have as much as they should have; and those who hire them—especially farmers—think they can not *stand* it to go on farming and pay as much as they have been paying. I wish it were possible for a poor weak faulty human being like myself to suggest a remedy that would be agreeable to all parties.‡ I have studied over the matter a good deal, and it has seemed to me that the remedy must come along the line of our text. We must *all* be willing to "sweat" harder, or, in other words, keep our minds more on our work; then we from the opposite extremes shall be able to meet each other—yes, meet and clasp hands as friends and neighbors, even though one of us does the *bossing* and the other the *work*. Possibly we may soon exchange places. In this busy world of ours we are, in reality, almost constantly changing places; but if we want to be happy, if we want to enjoy our work and receive God's full measure of blessing, let us work thankfully and uncomplainingly. Let us be good-natured and patient, even if the sweat should drop from the end of our noses and run down the face into the eyes, as I suggested to you in the last number. And as we work together in gathering the crops, may God the Father give us grace to say in our hearts as well as in our words, "Blessing and glory and wisdom and thanksgiving and honor and power and might be unto our *God* for ever and ever."

HIGH-PRESSURE GARDENING.

BY A. I. ROOT.

THE NEW CELERY CULTURE.

This is the title of a little book published by the Rural Publishing Co.; and, in fact, most of it has already been given through the columns of the *Rural New-Yorker*. The principal idea in this new celery culture is, in dispensing entirely with all banking up. The plants are placed so close together that, when they are fully grown, they cover the ground so as to do their own bleaching. Like the new onion culture and a good many other new things, it is not quite new after all. Peter Henderson, years ago, recommended planting celery a foot apart each way, with this very purpose in view. Robert Niven, however, the principal exponent of this plan, puts the plants only 7 inches apart each way. You see, it is an important point to get just the right distance. If the plants are too close they will crowd each other, and you will get only a spindling growth; but if too far apart they will not be sufficiently bleached. Of course, the ground must be tremendously rich and strong, and there must be no stint of water, if you would have good strong stalks of celery only 7 inches apart. My plan would be, and is, to use stable manure; but Mr. Niven, however, uses the Bowker celery-fertilizer. Now, I have never been able to get any benefit from chemical manures on celery. I am, however, at present, testing the matter. My celery-bed is oblong, and made as rich as it can well be made, with barnyard manure. After doing this I have used the celery-fertilizer on alternate squares. At present I can discover no effect whatever from it, but perhaps it is not yet time. Mr. Niven uses two tons of fertilizer per acre, and he has already succeeded in raising a crop of celery on a single acre that sold at the rate of *$10,000 per acre*—at least, so the *Rural New-Yorker* says. Perhaps I may state that we have been growing celery somewhat on this plan for years; that is, after the plants are taken from our seed-beds we have let the remaining ones grow, banking them up outside; and in places where the plants were thick enough there would be no banking at all. The celery, however, was never quite as white and crisp as that bleached with earth. A relative of mine, however, informs me that he has now five or six thousand White Plume raised on the

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* The man and boy who sell stuff on the wagon will never make a blunder of this kind, you may be sure. They have seen customers so many times refuse to take them because they were unripe or overripe, that they have learned their lesson well; but it is not always possible or convenient to have the men who *sell* the stuff do the gathering.

† My wheel is proving a great help right here. I now go across the creek, or up by the windmill, and along the roads and paths wherever the men and boys are at work, with no laborious fatigue, and in a twinkling of time. It makes exhilarating pastime of what has been wearing me out—that is, when the ground is not too wet.

‡ One sure way of meeting these trials and difficulties forces itself almost constantly upon me. The father, with his own boys and girls, can meet the demands of the case—that is, if the family relations are such as they should be. The boys can be taught how to care for machinery, and they will have an interest in taking care of it that hired help seldom has or can have. I believe God intended that the family circle should be a partnership; and when we can see the boys, after they are married and have families of their own, still working side by side with the father, we get a glimpse of a happy solution of a great part of these troubles.

Niven plan, equal to any celery banked up. If this should be a success it will be a wonderful advance in celery-growing. We shall have reports, doubtless, before winter sets in, from a great many experimenters. The people at our Ohio Experiment Station have been for some years raising nice celery on a plan somewhat similar. The plants are a foot or more apart, and dirt is worked in between them. In order to get them out of the dirt you make a row of celery, say six feet wide, and then you have a road or alley six feet wide. The dirt needed is to be shoveled out of this road. The little book entitled "The New Celery Culture" also discusses other methods, and is, without question, worth the small price asked for it—20 cents—to any celery-grower. We can furnish it by mail at the above price.

OTHER NEW RURAL BOOKS.

The Rural Publishing Co. are giving us some quite valuable hand-books on rural matters, besides "The New Celery Culture," which I have already mentioned. A companion to this is "Chemicals and Clover," price 20 cts. Now, I should be very glad indeed to give this book a recommendation; but it makes me feel bad, and it *troubles* me exceedingly, to think that, on our soil, whether on low creek bottom or on upland, chemicals seem to have almost no effect whatever on our crops. I should very much prefer to use fertilizers than to get so much manure from the livery-stables, for then I could escape the great host of weed seeds that are sure to come with stable manure.

We have already given a notice of "How to Rid Buildings of Rats," etc. This "rat-book" is of especial value. The book is written in such a happy vein that almost every one who takes it up will read it through; and after they have read it they will, all their lives, be better prepared to fight rats and mice successfully. The price of the book is 20 cts.

"Spraying Crops" is another little book, by Clarence M. Weed. It seems to cover the whole ground (of course rather briefly) up to the present time, and the price is only 25 cts.

Another book is the "New Potato Culture." This is written with the especial view of raising potatoes by the use of chemical fertilizers, and, of course, like my good friend Terry, I can not understand how anybody can raise potatoes with chemicals alone—that is, judging from the experience we have had. When they talk about guano, that is all very clear and plain sailing, for that is animal manure; but the statements in regard to nitrate of soda and such like chemicals are, to me, a stumbling-block. Why don't such things produce any result whatever in any experiments that I make? The price of this book is 40 cts. in paper, or 75 cts. bound in cloth.

The next book is "The Horticulturist's Rule Book," written by Prof. Bailey. This is a very valuable reference-book indeed; in fact, it is wonderful to see how much real knowledge and information is given briefly in a few words, and it covers almost the whole ground of horticulture. The price is 60 cts. in paper covers, or $1.00 bound.

We can forward any of the books mentioned above, on receipt of the price given. I would especially recommend the "New Celery Culture." This will be particularly valuable to those who grow only a little celery in their own garden, for by this new process we can get almost a wagonload of celery on a piece of ground not much bigger than the wagon-box itself; but, oh dear me! you have got to give it *manure* and *water*. Celery is one of the few plants that are so accommodating as to grow almost as well (or sometimes it seems even better) in the shade of buildings. On this account many people can have a little celery-garden where they could not have a garden of any sort very well.

THE OHIO STATE UNIVERSITY FARM.

Inasmuch as we have had frequent contributions from our Ohio State Experiment Farm, and have also published the results of many of their experiments, we think it quite likely our readers will be interested in the following announcement:

> The management of the Ohio State University Farm, which has been conducted by the Ohio Agricultural Experiment Station during the past five years, has been again undertaken by the Board of Trustees of the University. The farm has been placed in the direct charge of the professor of agriculture, while the horticultural work is in the hands of the professor of horticulture. Mr. Franklin P. Stump, a recent graduate of the Course in Agriculture, has been appointed Foreman of the Farm. Mr. W. S. Turner, formerly with the horticultural department of the Experiment Station, has been appointed Foreman of the Gardens.
>
> The re-occupation of these grounds by the University will enable the instructors of the Departments of Agriculture and Horticulture to use the farm and gardens for class illustration and instruction, and thus make possible a considerable enlargement of the practical work in agriculture and horticulture. It is not the purpose of these departments to make money, but to make men.
>
> A large portion of the work on the farm, and in the gardens and orchards, is done by students, preference being given to those in the School of Agriculture. During the past week 39 students have been on the pay-roll of the Departments of Agriculture and Horticulture. Five other men were employed, three of them for less than three days.
>
> The members of the faculty composing the Committee on Agriculture will undertake such experimental work as their time and the funds at their disposal will allow. Thos. F. Hunt.

I would call particular attention to one sentence in the above: "It is not the purpose of these departments to make *money*, but to make *men*;" and in these days when so much is said about bribery and corruption generally in public places, it is pleasant to know that no such charge has been made against the students and managers of our various experiment stations belonging to the different States. In some cases they have been accused of stupidity, but never, to my knowledge, of dishonesty; and when it comes to the former, the man in these days who has not had occasion again and again to call *himself* stupid is surely not a progressive man. The stations are, by their tests, giving us a glimpse, for almost the first time in the history of the world, of the real stupidity and superstition the world has for ages been groaning under—that is, the agricultural world. I have often wished that other departments of science and industry might be weighed in the balance in about the same way that our agricultural colleges are now weighing and testing every thing in their line.

THE BORDEAUX MIXTURE FOR QUINCE-TREES.

Some five or six years ago I purchased fifty quince-trees, and have been trying ever since to get some quinces. They are on very rich ground, and, we thought, had the best of care; yet the fruit was so knotty and gnarly, and the foliage looked so spotted and twisted, that I began to accuse the friend who sold me the trees of having given me some inferior kinds. In fact, Mrs. Root would scarcely consent to waste her time in cutting over any quinces of *our own raising*. Last spring I sprayed them three times with the Bordeaux mixture; and notwithstanding almost every time the solution was washed off right away by drenching rains, the trees have put on a better appearance than ever before, and I have succeeded in showing some of the finest quinces that anybody ever saw around here. In fact, they were large, round, smooth, and fair. Somebody said they used to see such quinces years ago when the country was new, but not of late years. I think there can be no mistake but that it was due to the copper solution, for we have never before had even a single quince that was worth carrying home.

AN EVER-BEARING BLACKCAP RASPBERRY.

I think it was a year ago last February that some good friend among our readers sent me a little raspberry-plant, with an injunction to take good care of it, saying it would show me something wonderful. He further added, "It will bear you nice berries this year." We put it in the greenhouse, and it took hold and grew amazingly. But I put it in the open air almost too soon, and it got a backset that it scarcely recovered from during the whole of last season. This year, however, it started again and grew as it did in the greenhouse. A little before other blackcap raspberries were bearing, it commenced bearing on *new wood of this season's growth*, and it has been blossoming and bearing ever since, and gave us a double handful of most luscious berries on the 25th of September. The berries were as large as any blackcaps, and I should say they were the most luscious of raspberries. We have failed, so it seems, in getting ever-bearing strawberries; but we have an ever-bearing raspberry that, so far as my experience goes with a single plant, fills the bill completely. So far it has not seemed to be affected with rust or blight, nor any thing of the sort; and the funny thing about it is, that the berries grow along the ends of the new wood. Will the kind friend who sent it tell us its name? and if he has plants for sale, he can probably fill orders. A. I. R.

GLEANINGS IN BEE CULTURE

A Journal Devoted to Bees and Honey and Home Interests.
Illustrated Semi-Monthly
36 Pages 7×10
$1.00 Per Year.

The meek shall inherit the earth, and shall delight themselves in the abundance of peace. PSALM 37 : 11.

Look out for Rambler's article in next issue. It is rich in experience.

Oct. 6 we sent to Frank Van Allen, Medical Missionary, Madna, India, $34.80, which has been contributed by our subscribers for the famine sufferers of that country.

The last *Canadian Bee Journal* contains a very interesting picture of the apiary of F. A. Gemmill, Stratford, Ont. Mr. Gemmill and his family sit in the foreground, and the whole view shows a well-regulated apiary with all the best modern appliances.

We notice, in the *Canadian Bee Journal*, editorials signed "Assistant Editor." It would give us considerable satisfaction to know who that individual is—not that we wish to pry into the private affairs of our esteemed cotemporary, but it is pleasant to know who is talking.

While we are receiving, as usual, some discontinuances in subscription, the great majority in renewing, say, "Don't stop GLEANINGS. I want it as long as I live." Another that has just come to hand, says, "Keep on sending GLEANINGS or I'll puncture your pneumatic." Sometimes we feel as if we should like to sit down and phonograph thanks to all; but this is impracticable, and we hope our kind friends will understand that all this is thoroughly appreciated.

The *American Bee Journal* has not only been renewing its youth by infusing into its editorial veins new and younger blood, but now it beams forth in a new dress, or, more exactly, a new cover design, and here and there through its pages novel and appropriate department headings. Even though the "old reliable" has lately exchanged ownership, it is bound somehow to show the delightful impress of a *new* man, be he old or young.

The Chautauqua literary course has been such a marked success—a scheme whereby old and young who, for various reasons, can not leave home, can take a systematic course of study for a period of three or four years, pass examination and receive a diploma, that the Pennsylvania State College has inaugurated a Chautauqua course in agriculture. There are many farmers' sons who will be glad to take up such a course, and we take pleasure in calling attention to it. For full particulars address H. J. Waters, B. A. S., State College, Center Co., Pa.

Friend Alley, of the *Apiculturist*, seems to take it greatly to heart because we can not declare that his (Alley's) hiver is better than Pratt's. As we understand automatic hivers, and the objects sought, we can not but regard the Pratt as superior and better, both as to its cheapness and general operation. The grounds of our preference have already been given before, as well as incidentally in this issue. Only time can decide regarding the relative merits of any hiver, or whether or not they will ever be regarded as a permanent success. By the way, there are several things in the last *Apiculturist* that are — well, unjust and almost unkind toward not only ourselves but others. If they had come from any one but friend Alley we should be "mad."

With this issue the Rev. L. L. Langstroth begins a series of continued articles, giving in detail his autobiography—his early boyhood, experiences, and tendencies; short sketches of his college life, how he became interested in the study of bees, the circumstances which led to his invention that revolutionized bee-keeping, with here and there interesting reminiscences, charmingly told, of noted bee-keepers of the early days. These articles will continue through this year and part of next. The whole matter has been committed to manuscript, so that, in the event of a relapse of Mr. L.'s old head trouble barring him from further literary work, the articles will appear just the same. Some fine and expensive engravings have been prepared; and these, with the interesting subject-matter — apicultural history that came well nigh never being told—will make a valuable addition to our bee-lore. Be sure not to miss the reading of these articles through the entire series.

THE BURNING OF A BEE-SUPPLY ESTABLISHMENT.

We regret to announce that the bee-hive factory of J. W. Bittenbender, Knoxville, Ia., was burned to the ground a few days ago. Mr. B. had just put in a new boiler and engine, and it was while the former was fired up for the first time that the fatal spark from the stack took its flight through the air and set fire to the roof, and then to the whole structure, and part of the lumber-yard went up in smoke. There was no insurance, and the loss was heavy. The insurance had been canceled only sixteen days previously, the company at the time rejecting the risk, probably because it was too great, and Mr.

B. was not able to get insurance in any other companies. He was fortunate, however, in saving most of the machinery, amounting to about $1000.

While he would have carried insurance if he could have done so, the lesson comes to all of us to have our property in such shape that insurance men by the score will be willing to protect it at a moderate rate. That is the case with all the buildings here at the Home of the Honey-bees. With one exception they are all built of brick, and protected by automatic sprinklers; and the result is, we get a comparatively low rate from the best of companies. No manufacturing building or warehouse should be built without a metal roof; and the boiler-room should be carefully isolated from the rest of the plant. Ours has double brick fire-walls between each of the buildings, with metallic doors in each wall. It costs but little more to make every thing *comparatively* safe from the ravages of fire. It *costs* a little more —nay, verily, it is really *cheaper* in the end, as friend Bittenbender has learned by dear experience. He informs us he will rebuild at once of brick, and no doubt will be ready for next season's trade as usual.

THE SIMPLEST METHOD OF TRANSFERRING; HOW TO EXTRACT HONEY FROM OLD COMBS WITHOUT AN EXTRACTOR.

Along in the early part of last summer we purchased some twelve or fifteen colonies that we really did not want, but took them because we had partially agreed to do so. The reason that we did not really want them was because the combs were built in loose frames, said frames having been spaced so unequally that the combs were decidedly crooked, to say nothing of being bulged out of all decent proportions. The bees purchased were placed at the out-yard, and the boys were instructed to select one of the best combs of each colony containing unsealed larvæ, and place it in a new hive, together with a full complement of Hoffman frames of wired foundation. Another hive with the old combs was placed on top with a perforated zinc honey-board between. The bees and the queen were then shaken off in front of the entrance, and allowed to crawl in. This plan was pursued with all the colonies. As the queen could not go above, of course no more eggs were laid in the old combs. In two weeks' time we went down and found that the frames of foundation below were being drawn out, particularly next to the frame of brood of old comb. In the mean time the young bees in the upper story were hatching out and coming below to take care of the young larvæ in the lower hive. In about a month's time the bees had taken up their quarters more or less below, while the upper combs, crooked and undesirable, were emptied of brood, and filled, to a greater or less extent, with honey. The drone brood (and there was a good deal of it) was uncapped at the time the hives were changed. The honey season came on rather before we expected it in the out-yard; and the result was, that most of the crooked combs were filled with honey. These we expected to extract, and melt up the old comb; but circumstances so transpired that we did not; and finally, toward the end of the season, we took off such combs and placed them in a stack of Dovetailed hives piled six or eight high. The entrance at the bottom hive was contracted so that only about two bees could get out or in at a time. Virtually we allowed the bees to rob the honey out; but it was so slow an operation that it made no commotion in the apiary.

With little or no labor we had the bees all transferred on Hoffman frames, filled with nice beautiful worker comb made from foundation on horizontal wires; and all that remained was a lot of crooked combs which were soon converted into wax, the home-made frame stuff making excellent firewood for the boiler-furnace.

Now, there is nothing particularly new in any of this. The plan of transferring is simply a modification of Heddon's short way, as mentioned in the A B C book. The scheme of emptying the honey out of old crooked combs was nothing more nor less than what was described by Dr. Miller some two or three years ago. It works so well that we shall never again leave a lot of combs stored here and there with a little honey in them to tempt robbers.

IMPORTED ITALIAN QUEENS QUARANTINED; DIFFICULTIES IN SENDING QUEENS OUT OF THE UNITED STATES.

The imported Italian queens that were ordered from Italy about the middle of August, although we have been notified that they were shipped upon the receipt of the order, have failed to come to hand. Queens that were sent by mail on the same date from Italy, all came through dead, including all attendants. The rigid quarantine that has been maintained recently, necessitating the fumigation of all mail matter, explains why the queens came dead; but why the *delay* of fifty that are to come by express? We have notified our receiving agents at New York of the expected arrival of the queens, and asked them to instruct the quarantine officers that they must not be fumigated the same as other matter. We are afraid that those officers, not knowing what to do, have held them, and, of course, by this time all are dead. We have a great many orders booked for imported queens; and we make this statement so that not only those who have placed orders with us, but those who intend to do so, will understand the situation. It is true, the queens may come, and come through alive, but now it is exceedingly doubtful,

By the way, we have had no success of late in sending queens to Australia or to the islands of the sea. Either the cages failed to go through at all, or else when they did the queens were all dead. In some of the cases the quarantine officers are responsible; in others, it is nothing more nor less than official bullheadedness on the part of the postal authorities in foreign countries. Just as we were succeeding nicely in sending queens to all parts of the world, those very countries where we desired most to send the queens began to reject them. We have been sending them out up until within a few days, but we think we shall have to refuse to do so, for this year at least, in justice to ourselves and customers, until the quarantine and official bullheadedness are adjusted in better shape. We do not complain at the quarantine on account of cholera, but we do feel justified in using pretty strong language when official red tape interferes with the interests of the people.

Later.—The United States Official Postal Guide for September contains the following:

POSTOFFICE DEPARTMENT,
OFFICE OF FOREIGN MAILS,
WASHINGTON, D. C., Sept. 7, 1892.

The International Bureau of the Universal Postal Union, at Berne, Switzerland, has officially informed this Department that the Postal Administration of the Colonies of South Australia, West Australia, and Victoria give circulation in their mails to live bees. Consequently, live bees will be admitted to the mails hereafter dispatched from this country for South Australia, West Australia, and Victoria, provided they are packed in exact accordance with the conditions prescribed in paragraphs "i" and "j," Note

14, page 905 of the United States Official Postal Guide for January, 1892.

By order of the Postmaster-General.

N. M. Brooks,
Superintendent of Foreign Mails.

We notice that New Zealand and New South Wales are not mentioned—two provinces to which we have sent more queens than to any other in Australia. We had hoped that these might be included when the ruling came out.

The paragraphs "i" and "j" refer particularly to the size of the queen-cages; namely, 5x2x1½, with wire cloth and a movable wooden lid. The rates of postage to the provinces mentioned will be 1 cent for 2 ounces. This is a great reduction from letter postage. Until all danger from quarantine disinfection is over we would not even send queens to the provinces mentioned in the fine print above.

FACILITIES?

Look where you will, there's no bicycle plant so grandly complete as the one devoted exclusively to the manufacture of Victor Bicycles.

For years the work has gone on—and still at it—of making a model home for the best bicycles the world ever saw.

No other bicycle plant compares with this one, as no other bicycle compares with the Victor—or is ever likely to.

Victor catalog for the asking.

THAT'S IT.

OVERMAN WHEEL CO.
SPRINGFIELD BRANCH: 128 WORTHINGTON ST.

IF YOU WANT BEES

That will just "roll" in the honey, try **Moore's Strain of Italians**, the result of 13 years' careful breeding. Reduced prices: Warranted queens, 80c each; 3 for $2.00. Tested, $1.00 each; Select tested, $1.50 each. Safe arrival and satisfaction guaranteed. Those who have never dealt with me I refer to A. I. Root, who has purchased of me, during past 12 years, 582 queens. Circulars free.

J. P. MOORE, Morgan, Pendleton, Co., Ky.
13tfdb Money-order office, Falmouth, Ky.

BUFFALO, N. Y. Unsurpassed Honey Market.
BATTERSON & CO. Responsible, Reliable,
Commission Merchants. 18tfdb and Prompt.

Bee-Keepers' ❋ Supplies.

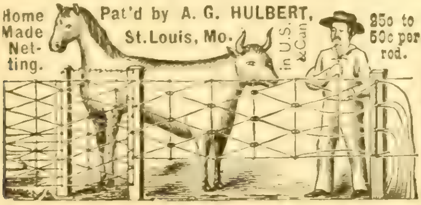
We are prepared to furnish bee-keepers with supplies promptly and at lowest rates. Estimates gladly furnished, and correspondence solicited. Our goods are all first-class in quality and workmanship. *Catalogue sent free.* Reference, First National Bank, Sterling, Ill. Address 1-24db

WM. McCUNE & CO.,
Sterling, Illinois.

☞ In responding to this advertisement mention GLEANINGS.

JENNIE ATCHLEY'S HOME

will be at Beeville, Bee County, Tex., in 1893, ready with queens again. 19tfdb


Home Made Netting.
Pat'd by A. G. HULBERT, St. Louis, Mo.
in U.S. & Can.
25c to 50c per rod.

SAFE, DURABLE FENCE; ONLY $80 PER MILE.

LAND-OWNERS *save one-half the cost avoid dangerous barbs*

Agents *make $200.00 per month and expenses* Cash

The best local and travelling agents wanted everywhere. Write at once for circulars and choice territory; address **A. G. Hulbert**, Patentee, care of

Hulbert Fence & Wire Co. Manufacturers 904 OLIVE STREET, St. Louis, Mo.

Factory Catalogue with 200 engraved designs and prices, sent free to any who want fancy iron and wire work or city, cemetery and farm fences, etc.

SPECIAL NOTICES.

Until further notice we will pay 5 cts. each for GLEANINGS for May 1, 1890. Remember, don't make a mistake in the number or year.

PRICES OF DIFFERENT FARM PRODUCTS.

In our locality, about 75 cents seems to be what farmers are getting per bushel for a good many things. Nice apples bring 75 cents; ditto onions; ditto potatoes; and I think very nice wheat would bring about the same; but perhaps more sales are made for about 70 cents. These prices are for first class. Of course, that is not very much for wheat; but for potatoes, onions, and apples, the prices seem to be pretty fair. A good many apples that are small or gnarly sell as low as 60 or even 50 cents; but where they are carefully picked, good sized, smooth and sound, I think there is no trouble in getting the above figure. Clover seed of all kinds is away up; and I have been wondering why bee-men do not make a practice of raising more alsike. I am told it is not affected by the midge or any of the enemies of the common red clover.

U. S. OFFICIAL POSTAL GUIDE.

This is a book of almost 1000 pages, 5¼x7¾, with monthly supplements of about 40 pages. It is published by authority of the P. O. Department, and contains an alphabetical list of all postoffices in the U. S., with county and State, a list by States, a list by States and counties, showing the money-order offices, domestic and international, also rates of postage, synopsis of postal laws, rulings of the department, information relating to postal matters, and general regulations respecting foreign mails. It is a book that ought to be in every business office that has much correspondence. The regular price in paper covers is $2.00; in cloth, $2.50, including supplements from time subscription is received till July, '93. The large volume is mailed early in January; but subscriptions should be sent in before that time. We are able to club the paper edition with GLEANINGS one year for $2.40, or the cloth-bound edition for $2.70.

MORE BOOKS DAMAGED BY WATER.

We have some more damaged books to offer. One of our water-tanks for fire protection is situated in a tower above the vault in which we keep most of our books. This tank got to leaking; and the water, working through the walls, has made a damp mold on some of the books. We offer the Christian's Secret, paper bound, at 10c, or by mail for 15c. We have also 15 or 20 copies of Quinby's New Bee-keeping, in cloth and gilt, that are molded on the front or back edge so as to disfigure them somewhat, the damage being almost entirely on the cover. This book sells new at $1.50, postpaid, or $1.40 with other goods. We offer these damaged ones at 75c each; by mail, 85c. Some that are damaged on the back edge have weakened the back so they will not hold together very long. If handled carefully they will hold together to read and lay by for reference. We offer these for 50c postpaid. We have also several thousand of the Abbott lithograph 12-color labels, slightly damaged—so little, however, that you will hardly detect it. We will sell these at $1.00 per 1000.

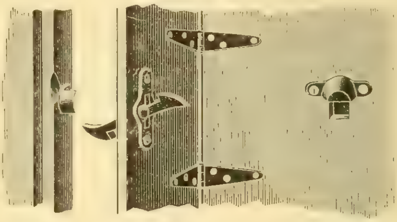
CARLOAD OF COMB HONEY.

We have on the way a carload of fine alfalfa comb honey from Reno, Nevada, to arrive within a few days. This comes from the same man, W. K Ball, who sent us such fine honey two years ago. There is no better honey produced anywhere than the alfalfa honey of Nevada and Colorado. It is very thick, light-colored, mild, and of very fine flavor. It is all in 1-lb. sections, produced with separators; is choice white, and packed mostly in 24-lb. cases, glassed one side. We offer it at the following low prices, and anticipate that it will go rapidly at this rate:

In lots of 1, 2, or 3 cases, 18c per lb.
In lots of 4 to 8 cases, 17½c per lb.
In full crates of 9 cases each, 17c per lb.
5 full crates, or 45 cases, 16½c per lb.

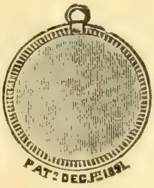
Since we have been receiving and shipping comb honey put up to ship by freight, several cases packed in a crate, with handles, we have not lost a pound by breakage, and we don't remember to have had any damage reported from customers to whom we have shipped, while we used to be bothered a good deal by breakage. We mention this that none may be deterred from ordering because of fear of breakage in shipping. Single cases by express are very often broken; but crates of several cases by freight, rarely if ever.

THE O. K. LATCH.



Stop that door from slamming. You can not do it more easily than by attaching one of the latches shown above. It will hold the door shut or open. It is intended for doors on all kinds of outbuildings, barn, stable, woodshed, honey-house, or any building that has a door that is liable to slam in the wind. The latch catches automatically either way when the door is opened or shut. It works so nicely that every one who sees it wants one. They are retailed from hardware stores at 25 cents each. They are made in this county, and we are allowed to make an introduction price of 15 cents each, $1.50 per dozen; by mail, 8c each extra.

AUGITE STOVE-MAT.



How much of domestic happiness is marred because the dishes prepared for dinner are scorched or burned! How annoying to have something boil over on the stove, as it is likely to do sometimes with the most vigilant watchfulness. All these troubles can be avoided by using the stove-mat shown herewith. We were somewhat skeptical about it till we tried it in our home, and now we are convinced that there is nothing that can lay a better claim to the term "a household necessity." The mat is made of asbestos, bound with sheet steel, crumpled around the edge, 9½ inches in diameter, and is indestructible. Though it is almost as soft as felt, it will not burn. You can place it directly on the blaze of a gasoline-stove, over the gas-jet, in the fireplace, or on the stove, and it will prevent burning of all kinds of food that ordinarily require stirring. No stirring is required for oatmeal, milk, rice, custards, blanc mange, jellies, butters, catsups, apple sauce, etc. In fact, nothing will burn on it. Coffee will not boil over if the pot is on the mat; bread toasts nicely on it. Try it and be convinced. For the nursery there is nothing equal to heat the milk and food for the baby. If a grate fire, lay the mat on the open fire. If the mat becomes soiled, do not wash or scrape, but turn the soiled part next to fire, and burn until clean. The mat regularly retails for 25 cts. We will furnish them at 20 cts. each; $2.00 per doz. By mail, 6 cts. each extra, or 65 cts. per doz. We will give one free postpaid for a new subscription to GLEANINGS, with your own renewal and $2.00.

SECOND-HAND FOUNDATION-MILLS.

We have the following list of second-hand foundation machines which have accumulated during the past few months, some in exchange for new machines, others from those who have decided to buy what foundation they use. We give as fair a description as we can of these machines, with the price at which we will sell. We can furnish samples from any of the machines to intending purchasers.

One 6-inch hex., No. N, used a short time in our wax-room; in good order; makes fdn. 10 or 11 feet to the lb. Price $10.00.

One 6-inch hex., No. M, extra-thin mill, in splendid order. Price $10.00.

One 6-inch hex., No. K, thin surplus mill, in good order. Price $9.00.

One 10-inch, round cell, No. L, in good order for light brood fdn. Price $14.00.

One 10-inch, round cell, No. I, for light or medium fdn.; in good order. Price $14.00.

One 10-inch, round cell, No. E, old-style frame; made some years ago, but used scarcely any, and in good order. Price $14.00.

One 10-inch, round cell, No. C, old-style frame; in fair order. Price $12.00.

One 12-inch, round cell, No. D, for heavy brood fdn.; roll, same size as 10-inch, only 2 inches longer; one of the original Washburn mills, in fair order. Price $15.00.

One 12-inch Dunham mill for heavy brood fdn.; not so good as the above, but in fair order; will sell for $12.00.

CHOICE WHITE EXTRACTED HONEY WANTED.

We are sold out of extracted honey, and have a good demand. Those having it for sale will confer a favor by submitting a sample. Tell how much you have, how it is put up, and what you want for it.

KIND WORDS FROM OUR CUSTOMERS.

HONEST, EVEN IF CHOLERA DOES COME.

Mr. Root:—You will find inclosed $20.00 to apply on my account. This is the best I can possibly do now. If I survive the cholera I will pay you the remainder. If I die, my wife, who is honest, will pay you out of $3000 life insurance.

Phœnix, Ariz., Sept. 9. JOHN B. HOOVER.

I have just returned from the State Fair, where I took two first premiums on comb honey—first on display and first on best 20 lbs., quality and manner of putting up for market considered. I used your 12-lb. cases and those honey-labels you sent me. The labels were considered very neat and pretty. One case was purchased to go to the World's Fair.

Harrison, Minn., Sept. 15. N. P. ASPINWALL.

I have half an acre in a vegetable and fruit garden, and read with great interest and profit your "high-pressure garden" department in GLEANINGS. It is the best, most interesting, and useful publication I ever read. I am going to try your plan of gardening under glass this coming season, so far as I am able to get the sash. I have already one strip of rye up, and am going to plant more to-morrow. Thanks to GLEANINGS for the suggestion.

Nashville, Tenn., Sept. 16. A. R. GRAY.

HEALING THE SICK, ETC.

Never mind Finch's rebuke. He failed to realize that prices are generally competitive, and set by the world. When you were talking about prayer, and healing the sick, why did you not give God's complete plan, as found in James 5: 14, 15? It is a direct command, and a direct promise, without an exception. The Lord shall raise him up, right away from his sick-bed. We know he will raise him at the resurrection; but *that* is promised *before*. Then it is a complete forgiving of sins. That alone is a great gain, and with the anointing, why can't we take God's plans? Will you please consider this?

Pottstown, Pa., Sept. 4. W. W. KULP.

A KIND WORD INDEED, AND WITH A MORAL TO IT.

Friend Root:—I received your letter of June 11, 1892, containing money order for beeswax I sent you. You give me more than the market price, saying it was for its good quality. This was pleasing to me, and exceedingly gratifying to know you were pleased with the wax. Thanks for your generosity. I admire your prompt, honorable, and careful way of doing business. As I held your statement for the beeswax in my hand, contemplating the accurate, clear-cut figures, and the handwriting (permit me here to give your lady clerk much credit), I said to my wife, "This explains why some people succeed when others fail." I am growing old, and, according to human events, will soon have to quit business. Our business relations have been long and pleasant to me, and I hope they have been to you. May your life's sun set in a clear sky.

Spring Mill, O., June 15. J. W. NIMAN

THE WATER-CURE TRACTS.

I will again avail myself of your offer to send water-cure tracts, such as you sent me free of cost some time ago. We have had a case of inflammation of the bowels in this village, which was pronounced by three prominent physicians as incurable the patient had to die, and that inside of 24 hours. I began to give him the injections according to directions, as I have taken them myself for two or three years, and the patient immediately felt relieved, and in three days resumed his work. The result was a sensation in the village, and many applications for tracts. As I am out of them I will rely on your kindness to forward me 200 more of them.

Taftville, Ct., Aug. 24. P. A. REEVES.

A KIND WORD IN REAL EARNEST.

Bro. Root: I am a constant reader of GLEANINGS, and I have greatly enjoyed reading the articles under the head of "Ourselves and Our Neighbors." In the July 1st issue is one of those articles that touched the most delicate cords of my heart, and awakened the deepest sympathies, and touched the tenderest emotions of my soul and my nature. My dear old brother, you have struck the right string this time, and it gives "no uncertain sound," but echoes the voice of God and his Christ in his holy word. Continue in this line; and may God give you faith and utterance. You may speak and write all the rest of your days on this text, and not exhaust it, for it comprehends and opens up the entire field. I have always believed, and still believe, that adultery and its twin sister and couplet, idolatry, were the great sins of men and of nations; that all other sins (except, perhaps, the sin against the Holy Ghost) were only collaterals. O my brother! let us look around us. I fully indorse the sentiment, "The sooner we believe in Satan, exactly as we are taught of him in God's holy word, the better for humanity;" knowing him, let us watch him, and study his operations with individuals, with church, and with state. M. W. C. FRAZIER.

Carrizo Springs, Texas, July 6.

IS THE BOOK OF JOB TO BE CONSIDERED A PARABLE OR A REALITY?

Mr. Root:—I often read with much interest your lay sermons in GLEANINGS, and sometimes find in them ideas worth appropriating for my own services. Oftener, perhaps, they serve me by their suggestiveness. But I do not quite like the idea of "taking the book of Job exactly as we take the parable of the prodigal son." My objection is, that other portions of Scripture seem to assume clearly that Job was a real man, and his trials a reality. For me and for many others the force of the lessons which you draw from the book is much reduced if the book is to be counted a fiction. We read in Ezekiel 14:14, "Though these three men, Noah, Daniel, and Job, were in it, they should deliver but their own souls," etc. If Job were a fictitious character, this would be much like grouping together Dr. Livingston, Mr. Stanley, and Robinson Crusoe. Again, in James 5:11, we read: "Ye have heard of the patience of Job, and have seen the end of the Lord; that the Lord is very pitiful and of tender mercy." Here is no hint that the patience of Job was less real than the Lord's pity and tender mercy. In fact, if the book of Job is only a parable there was no exercise of the Lord's compassion. Such are the views of at least one interested reader, and one of his reasons for the same.

Lincoln, Tenn., July 9. DAVID STRANG.

[Many thanks, dear friend Strang, for the additional light you give us on the matter; and I must confess to being so poor a Bible reader that I had never noticed either of the quotations you make. I accept the force of your reasoning, and thank you for it. Perhaps I might say that I received my suggestion, that Job might be only a parable, from one of the clergy; and, come to think of it, I believe he only stated that some theologians were inclined to accept Job as a sort of parable. Your position certainly does not lessen the force of the lessons taught in this wonderful book. Come to think of it again, it seems hardly likely that the personal wealth, as well as the names of the children of a purely fictitious person, would be given in the Bible. In the case of the prodigal son, the characters are evidently all imaginary, as nothing but the lesson of forgiveness is taught; but the book of Job is, to a great extent, the history of that man.]

5 Per Cent Discount On All Goods

Listed from pages 10 to 30 of our price list, which are ordered between now and Dec. 1st, for next season's use. This does not apply to goods on other pages, except those mentioned. **A special reduction of 20 cents on each two-story chaff hive,** ordered for a limited time. The quantity and early-order discounts to apply also. Special prices quoted on sections in lots of 2000 and upward. Name the quantity and size when you write. We guarantee as good a quality for the price as you can obtain anywhere. Dealers should not fail to write us before making contracts for another season's supply. We offer special inducements.

A. I. ROOT, Medina, Ohio.

DOVETAILED HIVES, SIMPLICITY HIVES,

SECTIONS, EXTRACTORS, ETC.
A FULL LINE OF
BEE-KEEPERS' SUPPLIES.
60-PAGE CATALOGUE. 1tfdb

J. M. JENKINS, WETUMPKA, ALABAMA.

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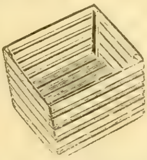


Bushel Boxes.

We make and sell them DIRT CHEAP, because they are made of the refuse pieces from section blocks—pieces that are good and sound, but are slightly discolored. **PRICE, CRATE OF 15 (13 IN THE FLAT AND 2 NAILED UP), $1.50; 10 CRATES OF 15 EACH, 5 PER CENT OFF.** These Bushel Boxes save time in loading and unloading, and bin room in the cellar. Send for pamphlet on "**HANDLING FARM PRODUCE,**" free.

A. I. Root, Medina, Ohio.

ROOT'S GOODS FOR THE EAST.

Bee-Keepers of the East should

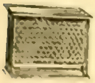
Bear In Mind that we have established at Syracuse an **Eastern Branch**

where our Bee-keepers' Supplies are kept for sale, and prompt shipment. You can save time and freight by ordering from our Eastern Branch. We have engaged Mr. F. A. Salisbury to take charge of this business, and he will treat you well. He will be pleased to send you a list of goods kept in stock.

Address all orders,

EASTERN BRANCH, F. A. SALISBURY, Agent, Syracuse, N. Y.

PATENT WIRED COMB FOUNDATION
HAS NO SAG IN BROOD-FRAMES.
THIN FLAT - BOTTOM FOUNDATION
Has No Fish-bone in Surplus Honey.



Being the cleanest is usually worked the quickest of any Foundation made.

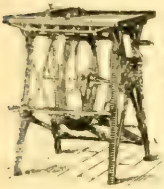
J. VAN DEUSEN & SONS,
Sole Manufacturers, 5tfd
Sprout Brook, Montgomery Co., N. Y.
Please mention this paper.

CLOSING-OUT SALE.

No. 1 Sections, $2.50 per M. Full colonies of bees in 8-frame L. hives, $4.00 per colony. Send for reduced list.

W. D. SOPER. Jackson, Mich. 20tfd

Barnes' Foot-Power Machinery.



Read what J. I. PARENT, of CHARLTON, N. Y., says—"We cut with one of your Combined Machines last winter 50 chaff hives with 7-inch cap, 100 honey-racks, 500 broad frames, 2,000 honey-boxes, and a great deal of other work. This winter we have doubled the amount of bee-hives, etc., to make, and we expect to do it all with this saw. It will do all you say it will." Catalogue and Price List free. Address W. F. & JOHN BARNES, 545 Ruby St., Rockford, Ill.

When more convenient, orders for Barnes' Foot-Power Machinery may be sent to me. A. I. ROOT.
23tfd

Muth's
Honey - Extractor.

Square Glass Honey-Jars,
Tin Buckets, Bee-hives.
Honey-Sections, &c., &c.
Perfection Cold-Blast Smokers.

APPLY TO
CHAS. F. MUTH & SON, Cincinnati, O.

Send 10-ct. stamp for "Practical Hints to Bee-keepers."
Please mention this paper.

TAKE NOTICE!

BEFORE placing your orders for SUPPLIES, write for prices on One-Piece Basswood Sections, Bee-Hives, Shipping-Crates, Frames, Foundation, Smokers, etc. PAGE & KEITH,
14tfdb New London, Wis.
Please mention this paper.

75c. Golden Queens by Return Mail. 75c.

For beauty and business. Safe arrival and satisfaction guaranteed. This is a money-order office.
J. B. CASE, Port Orange, Vol. Co., Fla.

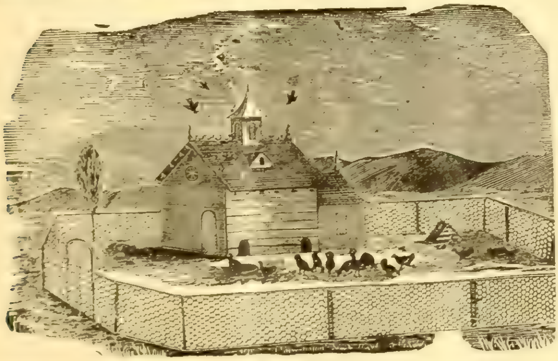
VANDERVORT
COMB - FOUNDATION MILLS.

Send for samples and reduced price list.
1tfd **JNO. VANDERVORT, Laceyville, Pa.**

FOR ALL KINDS OF BEE-KEEPERS SUPPLIES.
ADDRESS LEAHY MFG. CO. HIGGINSVILLE MO.

Galvanized-Wire Poultry-Netting and Fencing. The Best Made at the Lowest Price.

We handle only the G. & B. brand, which we consider the best made, as it is made of wire fully up to gauge, and has three-strand twisted-wire selvage, while other makes have only two. We have secured a carload from the factory, at a special low price, which we are able to sell lower than you can buy it anywhere else of equal quality, and lower than we have ever sold it before, though we have been getting more for it the past two years than we did in 1890. This carload that we have purchased is all 2-inch No. 19 netting, the size generally used for poultry. It was made nearly a year ago, and has lost some of the bright luster of fresh new goods; and it was for this reason alone that we bought it lower and are able to sell it cheaper. It is guaranteed equal in every respect to fresh new goods of the best quality, except in luster, which practically is of no account, because the brightest netting becomes dull in a few weeks after being put up. We have in stock all widths from 12 inches up to 60, which we can furnish at the following prices. All shipments must be made from here. We can not ship from New York or Chicago at these prices; but as we are able to secure through rates to almost all points from here, the freight will be little if any more than if shipped from either city. ¾-inch staples for below, 20c per lb.; 5 lbs. or over, 16c per lb.



Rolls 150 ft. long.	1 roll.	5 rolls.	10 rolls.	Rolls 150 ft. long.	1 roll.	5 rolls.	10 rolls.
2-in. No. 19, 12 inches wide,	$1 00	$ 4 50	$ 8 75	2-in. No. 19, 36 inches wide,	$2 90	$13 50	$26 00
" " 18 "	1 50	5 75	12 00	" " 42 "	3 40	16 00	31 00
" " 24 "	2 00	9 00	17 50	" " 48 "	3 75	17 50	34 00
" " 30 "	2 50	12 00	23 00	" " 60 "	4 75	23 00	44 00

The lot includes over 600 rolls, most of which are 48 inches wide, the usual size used. This price will last only as long as the stock lasts. You will do well, therefore to order early. The above prices are less than the wholesale quotations to-day on netting not one whit better, if as good. If you want other sizes, or shipment from New York or Chicago, write for our special 20-page netting catalogue, mailed on application.

A. I. ROOT, MEDINA, OHIO.

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$50.00 ⁂ Prize

We are getting up a club for the

Ladies' Home Journal

of Philadelphia, and offer the above prize to the person sending me the most subscriptions to that paper before Jan. 1st. It is a large dollar paper, but if you will get up a club of 2 or more we will make the price 70 cts. per year. After you have sent us 5 subscriptions the price will be 65 cts. After you have sent 10, 60 cts., and after you have sent us 25 subscriptions we will send it full year for 55 cts. Reduced rates on 2000 other papers. Catalogue free. Reference A. I. Root. Address

C. M. GOODSPEED, P. M.,
Shamrock, N. Y.

☞In responding to this advertisement mention GLEANINGS.

Eastern Supply House.

We furnish every thing used in the apiary, and at bottom prices. Illustrated circular free.

I. J. STRINGHAM, 92 Barclay St., N. Y.
21-20db Please mention this paper.

OTTUMWA BEE-HIVE FACTORY.

Bee-keepers, look to your interests. Every thing in the line of bee-supplies constantly on hand. Price list free. **GREGORY BROS. & SON,**
1-23d Ottumwa, Ia. South side.

Please mention this paper

SECTIONS.

$2.50 to $3.50 per M. Bee-Hives and Fixtures cheap. **NOVELTY CO.,**
6tfdb **Rock Falls, Illinois**

FOOTE BROS., MEDINA, O., offer S. C. W. Leghorns, D. Brahmas, and S. P. Hamburg cockerels at low prices. 19-20-21d

SAVE MONEY.—Send to J. P. H. Brown, Augusta, Georgia, for his price list of supplies. Hives and foundation at wholesale rates. 4tfdb

Wants or Exchange Department.

WANTED.—To exchange Scotch Collie pups for any thing useful on farm or in bee-yard.
15tfdb N. A. KNAPP, Rochester, Lorain Co., O.

WANTED.—To exchange fox-hound pups for pointer bird-dog, breech-loading or Winchester repeating shot-gun or rifle, or any thing useful in apiary. J. E. PRYOR, Middle River, Iowa. 20-21d

WANTED.—To exchange bees, typewriter, jewelry, for poultry or offers. DR. CORYA,
Nebraska, Jennings Co., Ind.

WANTED.—To exchange a heavy power saw-mandrel for small foundation mill. Also saw-table for light power, for Barnes saw. W. C. SIMONS,
21d Arlington, Wayne Co., Pa.

Kind Words From Our Customers.

I can procure no such seeds here as you send out.
Melbourne, Australia. L. T. CHAMBERS.

I received my queen on the 4th. She commenced laying at 12 o'clock to-day, and filled a comb on both sides with eggs while I walked half a mile, ate dinner and walked back. H. D. HERRINGTON.
Plank, Texas, Oct. 10.

Old reliable GLEANINGS, Sept. 15, is here, brimful of good things as usual. If I had Rambler by the hair I would try and pull hard enough to make him stop his rambles. Why, one may laugh himself to death, and still he keeps on.
Floyd, Texas. JENNIE ATCHLEY.

AS PLAIN AS DAYLIGHT.

I read in your bee-journal that you could not understand why you loved the outdoor world so much, or rejoiced so much to watch vegetation grow. I do not think it strange, for are you not a *Root?* and do not your initials spell A. I. R., *air?*
East Killingly, Ct. MRS. C. F. BRAINARD.

Mr. Root:—You have kindly sent me GLEANINGS for many years. I have enjoyed the reading of it greatly, especially your religious experience, your homilies on scripture texts, your manfully contending for the truth, your opposition to rum, tobacco, and all evil. May the Lord encourage you, and greatly bless your efforts in his cause and for man.

I am the first missionary that came from America to Japan. I have been here now 33 years, and have been permitted to see great success in evangelizing the Japanese. J. C. HEPBURN, M. D.
Yokohama, Japan, Sept. 27.

BEE-HIVE STUFF FROM MEDINA.

The Dovetailed chaff hives came through all O. K., every thing in good shape. We set one up, and every thing went together in first-class order. The party is well pleased with them, and says he will order more this fall. All the hives and other goods I have ordered from you have been satisfactory in every respect, and I will continue to sell your goods.

The honey crop in this section was poor, averaging about 25 lbs. per colony, comb honey. Bees are in good shape for winter. J. E. SCHRECKENGOST.
Kittanning, Pa., Oct. 20.

Mr. Root:—Until recently I thought I might meet you and Ernest and Mr. Calvert in this world. I now have given up all hopes, but trust we may meet in the next. I am 25 years old, and for the last 7 years have seen nothing but trouble and sickness. One blessing I have is good parents. Life is sweet, and, generally, hard to give up by one of my age; but for God's rich promises I am ready to try the realities of another world. If it is not asking too much, please send me a word of consolation. Remember me in your prayers. Oh how I wish you all were here! A. I. Root, continue your good religious talks in GLEANINGS. I hope you may all live long and do as much good in the future as you have in the past. IRA J. WHITMORE.
Longley, O.

Before I proceed to business I must stop "by the way" a moment. I can't thank you enough for some recent articles in your publication. Now, some people call me a queer sort of preacher; and, no doubt, judging from the standpoint of 50 years ago, I am. I have a sort of theory that, for one to be a well-balanced man, he must develop his body as well as his head. There are few indeed who use themselves up by overstudy. It is rather by too little exercise. Well, I have a bicycle; and for times when I can't run that, I have a miniature machine-shop, with a fine foot-power machinist's lathe, to which I have made various attachments. I want to say further concerning the cycle, etc., that I am 41 years of age; began my ministry quite early in life, and, in consequence of my schemes for exercise, I do not remember that I ever lost a Sabbath in consequence of sickness. Medicine is an entire stranger to my system. A. M. PIPES.
Sioux City, Iowa, Oct. 8.

HONEY COLUMN.

CITY MARKETS.

NEW YORK.—*Honey.* The demand for comb and extracted honey is good, with stock enough coming in to meet all demands. Excepting fancy grades, which are not very plenteous, we have this year, so far, received as much honey within about 200 cases as last year already. 'Tis true it has sold more readily than last year, owing, we believe, to the scarcity of honey in the Western States.

Fancy 1-lb., 17; fancy 2-lb., 13@14; fair, 1-lb., 12@13; fair, 2-lb., 11@12; buckwheat, 1-lb., 10@11; 2-lb., 9@10. Extracted, clover and basswood, 8@8½; buckwheat, 6@6½; Southern, 65@75. *Beeswax*, 25@27.

CHAS. ISRAEL & BROS.,
Oct. 22. 110 Hudson St., New York.

NEW YORK.—*Honey.* Comb honey continues to arrive freely. Up to date we received 6159 crates. Fancy white is in good demand, and firm at 15@17 for 1-lb. and 12@14 for 2-lbs. The demand for off grades, white and buckwheat, is rather limited and these grades are slow selling at from 12@14 for 1-lb. fair white, and 11@12 for 2-lb. Buckwheat, 10@11 for 1-lb., 9 for 2-lb. Extracted in good demand. We quote: White-clover and basswood, 8@8½; Southern 70@75 per gallon.

HILDRETH BROS. & SEGELKEN,
Oct. 25. 28 & 30 West Broadway, New York.

NEW YORK.—*Honey.*—Fancy 1-lb. sections, clover, 15@16, in good demand; off grades, white, 12@14. Slow sale. Buckwheat in good supply, 10@10½, paper cartons most preferred. *Beeswax.* Pure, 25@26½, demand good; paraf. wax, 7@8; ceresin wax, 13½@15.

THURBER-WHYLAND CO.,
Oct. 20. New York.

BUFFALO.—*Honey.*—The honey market continues unchanged, firm and moderatedly active, with insufficient arrivals. We have not, in fact, any winter supply, and would like several tons, therefore, immediately; assuring all that can possibly be obtained for it in any manner here. Moderate sales, fancy 1-lb. comb, 15@16; do. No. 2, 12@14.

BATTERSON & CO.,
Oct. 19. 167, 169 Scott St., Buffalo, N. Y.

ALBANY.—*Honey.*—The honey-market has weakened some under increased receipts; but there is no accumulation of white comb honey.

White comb selling at 15@17; mixed, 14@15; dark and buckwheat, 10@11; extracted, white, 7½@8½; amber, 7@7½; dark, 6½@7. *Beeswax*, 27@28.

H. R. WRIGHT,
Oct. 14. 326, 328, 330 Broadway, Albany, N. Y.

MINNEAPOLIS.—*Honey.*—The market is picking up considerably. The supply is light and the demand is extremely heavy, particularly for fancy white-clover honey in 1-lb. sections. Choice white-clover is selling at 15@16. Fancy white-clover, 1-lb., 18@19. Strained honey in small packages 8@10; bbl. 300 lbs., 8c.

J. A. SHEA & CO.,
Oct. 13. 14 & 16 Hennepin Ave., Minneapolis, Minn.

MILWAUKEE.—*Honey.* The receipts of honey are very small. There is a good demand for 1-lb. sections; if of choice quality, will command 18c per lb., and may be higher if very perfect. The old is well sold out, and shipments of new will do well.

Choice 1-lb. sections, 18@20; same, common, 15@16. Extracted, white, in kegs and cans, 8@9; dark, 7@8.

Oct. 13. A. V. BISHOP,
Milwaukee, Wis.

PORTLAND.—*Honey.* Comb honey is not moving off very fast. We are selling light amber comb at 15@16, and white at 16@17; extra white, 17@18. Light amber extracted selling at 8½; extra white, at 9.

Beeswax, 26@28. LEVY, SPIEGL & CO.,
Oct. 12. Portland, Oregon.

KANSAS CITY.—*Honey.*—We quote: Comb, No. 1 white, 1-lb. comb, 16@17; same, No. 2, 14@15; No. 1 amber, 1-lb., 15@16; same, No. 2, 12@13. Extracted, white, 7½; amber, 5@6. The receipts of honey are very light, clean, and good. *Beeswax*, 22@25.

Oct. 21. CLEMONS-MASON COM. CO.,
Kansas City, Mo.

CLEVELAND.—*Honey.* We quote the following prices at which honey and beeswax are selling in our market to-day. White-clover honey, in one-pound sections, selling from 17@18c, strictly A1. Second grade, 15@16c. Third grade, 10@12. *Beeswax*, A1, selling from 24@25c per lb. We are handling large quantities of honey, and are prepared to handle for parties who will favor us with shipments, and will make prompt returns for all goods consigned to us. We guarantee sales on all products handled by us.

REYNOLDS & WILLIAMS,
Oct. 27. 80 & 82 Broadway, Cleveland, O.

CINCINNATI.—*Honey.* Demand is good for all kinds of extracted honey at 5@8c on arrival. There is a fair demand for comb honey, at 15@16 in a jobbing way for best white. *Beeswax* is in fair demand at 20@25 on arrival, for good to choice yellow.

CHAS. F. MUTH & SON,
Oct. 22. Cincinnati, O.

KANSAS CITY.—*Honey.*—There is a good demand for honey, but a very light supply. Price of 1 lb. comb, white, 17c. Extracted, 6@7½. *Beeswax*, 22@25.

HAMBLIN & BEARSS,
Oct. 22. 514 Walnut St., Kansas City, Mo.

CHICAGO.—*Honey.*—Demand for white comb honey is steady, and we get 18c for best lines. Dark honey is moving at 13@15; extracted selling at 6@9, according to quality. *Beeswax*, 25.

R. A. BURNETT,
Oct. 19. 161 So. Water St., Chicago, Ill

DETROIT.—*Honey.*—Best white in good demand at 14@15. Not much offered. Extracted, 8c for light-colored. *Beeswax*, 25@26.

M. H. HUNT,
Oct. 19. Bell Branch, Mich.

SAN FRANCISCO.—*Honey.*—We quote extracted honey at 7¼@7¾c, and it is scarce at that. Comb, 1-lb., 10@12; 2-lb., 9@12. *Beeswax*, 24@26.

Oct. 11. SCHACHT, LEMKE & STEINER,
San Francisco, Cal.

ST. LOUIS.—*Honey.*—No change in comb. Extracted in good demand at 5½@6¼. We will give 6¼ laid here for light-colored, good-flavored honey. *Beeswax*, 24½.

Oct. 20. D. G. TUTT GRO. CO.,
St. Louis, Mo.

BOSTON.—*Honey.*—Best white, 1-lb., 18@19. Best extracted white, 8@9; dark, 6@7. *Beeswax*, 25.

BLAKE & RIPLEY,
Oct. 20. Boston, Mass.

FOR SALE.—5000 lbs. choice white-clover and basswood honey; all in 1-lb. sections, packed in 12-lb. single-tier crates, delivered at R. R., 16c per lb.

21d FRED H. FARGO, Batavia, N. Y.

WANTED.—50,000 lbs. of choice white comb honey.
Address BYRON WALKER,
17tfdb Evart, Mich., or Wyalusing, Wis.

FOR SALE.—1000 lbs. buckwheat comb honey.
20tfdb D. F. LASHIER, Hooper, N. Y.

FOR SALE.—10 barrels choice white-clover honey. Will put it up in almost any style of package desired. Price on application. 20tfdb
EMIL J. BAXTER, Nauvoo, Hancock Co., Ill.

HONEY WANTED. Highest Market Price.
Spot Cash. BATTERSON & CO.,
BUFFALO, N. Y.
Please mention this paper.

FOR SALE. A No. 2 Corley Saw Mill; 3 head blocks with patent board dogs; 52-inch Disston circular saw; 64 feet track. Capacity of mill 8000 to 12,000 feet in ten hours. Mill is nearly new, Warranted to be in first-class running order.
M. H. FAIRBANKS,
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Are not always the result of the same cause. They may come from starvation; from poor food; from improper preparations; from imperfect protection, or from a cold, wet, or possibly a poorly ventilated cellar, etc., etc. Successful wintering results from a proper combination of different conditions. For clear, concise, comprehensive conclusions upon these all-important points, consult "ADVANCED BEE CULTURE." Five of its thirty-two chapters treat as many different phases of the wintering problem. Price of the book 50 cts.; the REVIEW one year and the book for $1.25. Stamps taken, either U. S. or Canadian. New subscribers to the REVIEW for 1893 receive the balance of this year free.

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More than one hundred thousand Bingham & Hetherington Honey-knives and Bee-smokers in daily use. Illustrations sent free.

Bingham & Hetherington,
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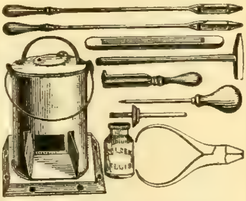
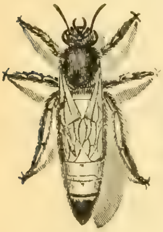
OATMAN'S SOLDERING AND REPAIR KIT



Consists of fire-pot, soldering-irons, solder, and soldering-fluid, with tools compl'te as shown in cut, with directions for soldering different metals, and how to keep your soldering-irons in shape. Whole kit, boxed, 12 lbs. Shipped on receipt of $2.00. Agents wanted.

8-7db **O. & L. OATMAN, Medina, Ohio.**



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ROOT'S GOODS can be had at Des Moines, Iowa, at ROOT'S PRICES The largest supply business in the West. Established 1885. Dovetailed Hives, Sections, Foundation, Extractors, Smokers, Veils, Crates, Feeders, Clover Seeds, etc. Imported Italian Queens Queens and Bees. Sample copy of our Bee Journal, "THE WESTERN BEE-KEEPER," and LATEST CATALOGUE mailed FREE to Bee-keepers.

JOSEPH NYSEWANDER,
Des Moines, Iowa.

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Wanted—every bee-keeper in Australia to send for my large illustrated catalogue of bee-keepers' supplies, American queens, etc., etc. Post free.

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FOR SALE. 25 CHOICE B. P. ROCK COCKERELS.

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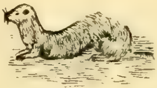

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GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS.

ILLUSTRATED SEMI-MONTHLY

PUBLISHED BY A. I. ROOT.

$1.00 PER YEAR MEDINA OHIO

Vol. XX. NOV. 1, 1892. No. 21.

STRAY STRAWS

FROM DR. C. C. MILLER.

I'M SORRY for Bittenbender's loss. He's a real nice fellow.

WILL AN ESCAPE make quicker work in day time or at night?

GRADING HONEY is a coming topic for discussion in *British Bee Journal*.

COMMISSION MEN, this year, are sending out, offering to *buy* honey. That tells its own story.

O. B. BARROWS says he doesn't know of any use for a valve in a smoker. They're better in theory than in practice.

AND NOW the *American Bee Journal* has gone to calling names—calls me a "stray strawer." Et tu, Brute?

HARD COAL is in both of my cellars. I don't propose to repeat the experiment of going through another winter without fire. But wish I had a warmer cellar.

HENRY ALLEY sounds a warning against introducing queens that produce five-banded bees. He says, "As surely as you do it, your apiaries will be ruined, and you will soon give up keeping bees, in disgust."

"THE OLD RELIABLE" *American Bee Journal* has washed its face, combed its hair, and put on a spick and span new holiday suit which it means to wear 52 times in the year. It's really gotten up in delightful manner.

NON-SMOKERS, in the last graduating class in Amherst College, have gained in weight 24 per cent. over the smokers; in height, 37 per cent; in chest girth, 42 per cent; and in lung capacity, 8$\frac{36}{100}$ cubic inches.—*Medical News*.

GIRDLING grapevines makes them bear younger, makes larger fruit, but are you sure it makes "finer" fruit, friend Green (p. 770)? Girdled grapes that I have seen were finer in appearance, but decidedly inferior in quality.

HICCOUGH, even the worst cases, says *Medical and Surgical Journal*, can be cured by a teaspoonful of pulverized sugar wet with an equal quantity of wine vinegar, taken at one dose. I suppose honey vinegar would do just as well.

SOME FRUITS, apples, berries, etc., whilst of fine quality, are such poor bearers that they are not worth raising. Isn't it so with lindens? and if we're to cultivate them, may we not just as well have the best? I've noticed a big difference in their productiveness.

E. F. QUIGLEY says the cause of swarming is nature. Well, if that's all I guess we can manage it. It's nature to raise lots of drones, but we stop that by cutting out drone comb. Now tell us, Bro. Quigley, "what in nater" is the particular thing that makes the swarming, and we'll fix 'em.

AUGITE STOVE-MAT, page 784. No wonder it won't burn with such a name as that. But my wife says it's just the thing she needs; so send your wagon around with one, friend Root. If the wagon's too busy, send a boy, or a man—Uncle Sam, for instance.

PROF. COOK, in a stirring article in *American Bee Journal*, is very positive that some of the $750,000 annually appropriated for agricultural research should be used directly in the interest of bee-keepers. But bee-keepers are too modest to clamor for their rights.

BEE-ESCAPES don't always work alike. We read how nice it is to put them on at night and find the bees all down by morning, but I put one over a strong colony, and the bees were not all below the escape till the end of a week. That was in the first part of October.

THOSE RASPBERRIES that are ever-bearing. Don't pin too much faith on them. I've had them. They'll give a nice crop once in a while (they always bear on the new shoots), but again they'll do nothing for a long time—altogether too cranky. I'll be surprised, friend Root, if you give them ground room three years from now.

I'VE BEEN LAID UP with a lame back. To turn over in bed was exquisite torture. I've enjoyed it—enjoyed the thought that so little of my life I've been unable to get around, and the thought that I have such kind friends when I can't take care of myself. I might have forgotten it but for this little spell. I'm nearly myself again.

THE NEW CELERY CULTURE. You know what it is. No banking up to bleach. Well, you ought to see my bed. Got the plants from Medina. Of course, the plants were more or less green when I got them, but in two weeks there wasn't a green spot on the bed—nor a white spot either. Grasshoppers cleaned it to the ground. Saved me lots of watering and manuring.

THAT FLAP-JACK ACT, p. 768, is a dangerous affair. If Bro. Wilder misses that flap-jack as it comes down he'll make a desperate effort to recover it; his jaws will come together with a snap, and his tongue will be a good deal shorter. Pull down your trousers legs, comb your hair, and look up a wife, Bro. Wilder, to turn your flap-jacks in the orthodox way. If for nothing else, do it as an example for Rambler.

DOES FREEZING hurt comb honey? Generally speaking, yes, very decidedly—cracks, granulates, leaks—in fact, frozen comb honey is generally ruined as a first-class article. But not always. I knew two cases, one in Illinois, one in Pennsylvania, where honey was frozen all winter in an attic without injury. But it had been roasted in that attic through the summer. At least *some* honey, if rich enough and thick enough, is not hurt by freezing.

"SWARMS WITHOUT QUEENS will not double up by going to a strange hive," says friend Dibbern, p. 765. If he means swarms that have clipped queens, so that the queens can not go with them, I'm sure the rule does not hold good with my bees. I can't see how it would make any difference whether the queen were fastened in the hive or tumbling around on the ground; still, facts can not be disputed; and if it proves true in the case of self-hivers, it's a big item in favor of hivers.

LANGSTROTH'S REMINISCENCES.

HIS EARLY CAREER; THE BREAD AND BUTTER REBELLION AT YALE COLLEGE.

My father, wishing to give me the advantages of a college education, placed me in the preparatory school of the University of Pennsylvania, then under the charge of Rev. James Wilbanks, who was a good classical scholar, and had the faculty of inspiring his pupils with a genuine love for the verses of Ovid, Vergil, and Horace. We committed hundreds of lines to memory, many of which I have never forgotten. It was a lesson never to be forgotten, to hear him, all alive with intense satisfaction, repeat those noble lines of Horace:

> Justum et tenacem propositi virum,
> Non civium ardor prava jubentium, etc.

Mr. Wilbanks was a disciplinarian after the very straightest sect of the Old School. If I was late, and had no excuse, I always stepped up to his desk, and held out my hand and took my punishment with as much grace as I could. The rod! the rod! this was the universal arbiter, from which there was no appeal. I once pronounced the word "a-*mi*-cus" as though it were "*am*-i-cus." In a thin voice, so shrill as almost to resemble a squeal (I can almost imagine that I still hear it ringing in my ears) he cried out to me, "*Am*-i-cus, Lorenzo! I'll *am*-i-cus you! That word is a-*mi*-cus!" and down came his rod with such an effective emphasis that I never forgot to say a-*mi*-cus.

But although he used the rod so freely, it was only in the way of what he thought his duty, and I never associated his name with any thought of cruelty. He made me a good Latin scholar, and his memory will ever be a pleasant recollection.

I entered the freshman class of Yale College in the fall of 1827. Strange to say, notwithstanding my early passion for investigating insect life, I can not remember, with the exception of a few trifling observations upon the habits of glow-worms, that I took the slightest interest in my old pursuits. My attention was mainly given to mathematics and *belle-lettres* studies, and I was always among the successful competitors for excelling in English composition. I roomed, in my freshman year, at the house of my college guardian, Prof. Denison Olmstead, who had charge of the college meteorological observations, and who inspired me with a great fondness for his favorite pursuits.

In the summer of 1828 occurred what will ever be famous in the history of Yale College as the great "Bread and Butter Rebellion." The students were all required to board in commons, unless they could procure a physician's certificate that their health required a different diet. The summer was unusually hot. The bread was not always sweet nor the butter fresh, and loud were the complaints made against the regular fare. At a meeting of the different classes, a resolution was unanimously passed that the students should show their dissatisfaction by absenting themselves one Monday morning from the dining-hall. Word had come to our venerable president, Jeremiah Day, of what the students purposed. So after morning prayers, which he usually conducted, he addressed them, in his wonted kind and courteous manner, telling them that, if they had causes of complaint about their fare, they ought in a respectful way to make them known to the faculty, whose interest it certainly was to have them remedied. He closed his appeal by affectionately warning us against any hasty and improper proceedings, which could only result in evil. But our passions were too much inflamed, and we were too much under the influence of those who had planned the original demonstration, to listen to any thing our good president could say. So when the bell rang out the summons for breakfast, crowds gathered around the dining-hall. None entered; but all, with loud shouts of defiance, expressed what they thought to be a proper sense of their wrongs.

Before dinner the classes met again for consultation, and their leaders now advised that they should decline to take any meals in commons until they had sufficiently expressed their indignation for the kind of food which had been served to them, and had obtained assurances from the faculty that their grievances should be redressed. Thus was inaugurated an absolute rebellion against the constituted authorities. I narrate these events more at length because of the important influence which they had upon the formation of my character. Before entering college I had promised my parents to obey its laws, and to give them no occasion to regret the sacrifices which they were making in my behalf. I saw that the course which we were now pursuing was a direct violation of that pledge; and, without consultation with any one, I determined to retrace my steps, and to go into the dining-room at the next meal, even if I went alone. At a meeting of our class I announced this determination, saying that we all knew that we were violating our matriculation pledges, and that, while I did not profess to be governed by a higher sense of right than others, I did intend to redeem as far as I could the promise which I had made to my parents.

I left the meeting after these remarks, and a committee was appointed to remonstrate with me, and to assure me that, if I persisted in my intentions, I should be treated by the whole class with merited contempt. The hour for dinner arrived, and the students were assembled in unusual numbers, as the report of what I meant to do had become generally known. Yells of execration greeted my appearance, as alone I ascended the steps leading to the dining-hall; stones were thrown at me; and one student, more daring than the rest, drew a pistol and threatened to shoot me. Nothing, however, could move me, for I was nerved to such a pitch of determination that I would have submitted to instant death rather than change my purpose.

In the afternoon of that day, my guardian, Prof. Olmstead, who knew nothing of my intentions until all was over, informed me that, by vote of the faculty, I had been excused from entering the hall again, and that my safety, and his duty to my parents, demanded that he should prevent it. I told him that they might kill me, but that I would never yield to them: and when I entered again, quite a number, most of whom I think were professors of religion, were emboldened to enter with me.

The issue of this affair was, that some students were expelled from college, all recitations were suspended, and the students returned to their homes. Only after signing due apologies were they allowed to resume their studies, at the beginning of the next college year. The course which I had taken, though it was at first so unpopular, in the end made me a host of friends. It was probably the turning-point in my life, for my natural disposition often inclined me to yield my own convictions of duty in order to be on the popular side. It would be difficult to tell how much I owe to that "Bread and Butter rebellion." L. L. LANGSTROTH.

(*Continued.*)

SHIPPING HONEY FOR EXHIBITION PURPOSES.

HOW IT IS DONE OVER IN ENGLAND.

Some two or three years ago, when Mr. C. N. Abbott, of the firm of Abbott Brothers, was here, he exhibited to us some samples of various bee-appliances used over in England; and among other things he showed us a shipping-crate provided with spiral springs, so that a case of choice comb honey could be put therein and shipped to a distant market. With such a contrivance the case could be dropped or tumbled around on the floor, and no damage occur to the honey, because the spiral springs absorb the concussion. We thought at the time we would give a description and illustration; but we had quite forgotten it until by chance we were looking over a back number of the *Bee-keepers' Record* for May, 1891. In this we found an article with engravings, describing much the same arrangement. As we are approaching the time when many of us will be thinking of shipping our honey to the World's Fair, and placing it on exhibition, we have concluded to reproduce the article entire, with engravings. Of course, the method shown below and described, is altogether too expensive for ordinary shipments; but where it is desired to send exhibition honey, and particularly a crate of extra choice combs so that it shall arrive at the exhibition grounds in perfect order, it may be advisable to use the method. "It is English, you know;" but the "English, you know," are far ahead of us in honey exhibits.

If we can do any thing by way of inducing exhibitors at honey shows, who may read these papers, to bestow a little consideration on the unfortunate and usually overworked "Hon. Secs.," and others who have charge of the "staging," we shall be aiding in the removal of a source of frequent trouble and annoyance to these latter gentlemen which is altogether inexcusable; and the worst of it is, it frequently happens that those who take most pains in packing their exhibits for transit to the show give quite as much trouble as those who take least; for the time and labor involved in unpacking and repacking some exhibits is, as we know from personal experience, "a caution." We therefore propose to show how bee-keepers, who aspire to "show" honors may send their dozen sections or their dozen jars of extracted honey by rail to the show, and have them unpacked, staged, repacked, and returned safely with the minimum amount of trouble to all concerned, and with no great outlay for appliances.

The cut (Fig. 1) represents a crate for holding a dozen one-pound sections; and as no great amount of skill is involved in its construction, it may be said that any amateur joiner can make it for himself. It is a box within a box, the inner one resting on six spiral springs fastened to the bottom of the outer box, while the inner one is pulled down a little by a strip of leather at each corner, as shown. This form of crate, without the lid, was first introduced by a well-known firm in 1886, and it answers the purpose admirably. The lid we had made for our own use, and its construction will be at once seen in the cut. The lower or inner lid is of thin board cut small enough to fit easily inside, close on to the tops of sections. The upper one is of the same light wood, with cross-pieces at each end, of three-quarter-inch stuff, and a strip of the same forms a handle to lift by. Five springs are fixed between these two lids and fastened to both, so there is no risk of one being lost. A stout screw driven in at each corner forces this double lid close down on to the sections, and keeps them firmly in place. As all sections sent to shows must be glazed, no other glass protection is used. The inner box is made 12¾ inches long by 8½ inches wide, so there is room for a small roll or wedge of corrugated paper to be slipped down at the outside of each row, which keeps them firm in place, and, when withdrawn, allows the section to be lifted out readily. Except to caution the maker not to cut the end-pieces of the crate so that the screws are driven into the top of the grain, and to have all its parts strongly nailed together, no further instructions are needed for making, save a close inspection of the cut.

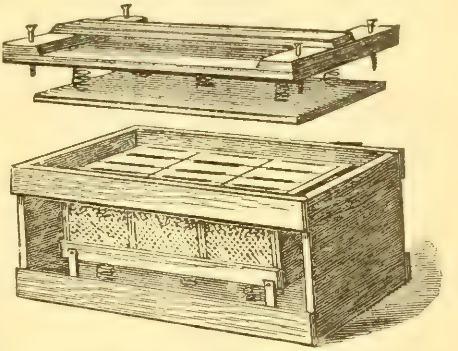


FIG. 1. A SHIPPING-CRATE FOR HOLDING COMB HONEY FOR EXHIBITION PURPOSES.

For extracted honey in glass jars, make a strong box divided into twelve partitioned squares, as shown in cut (Fig. 2). The exact size of these squares is determined by the particular make or form of the honey-jar used, but they are made sufficiently large to hold the jar comfortably when the latter is encircled by a fold of corrugated paper. The bottom of each portion has also a square of the same paper on which the jar rests. A strong lid hinged, on the inside of which is nailed a square of corrugated paper as shown, completes the box, while the height of the jars is so arranged that the ridged portion of the paper rests close on the screw-caps and keeps all firm. A single screw in the center of lid at the front fastens it down; and when a strong cord or rope, with a nail driven through it at the bottom, to keep it fast to the box and prevent its going astray, is tied around the whole, with a label on the top as before, the package is ready for traveling any distance without breakage.

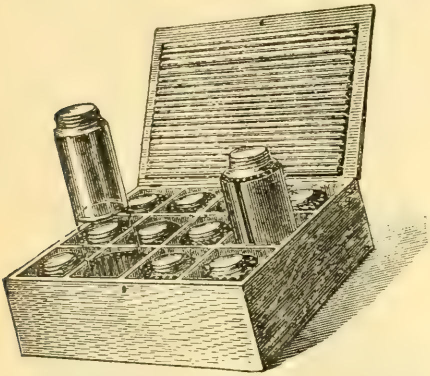


FIG. 2. A SHIPPING-CRATE FOR EXTRACTED HONEY.

The saving of trouble and labor to the officials of a show when dealing with honey packed in this form is simply astonishing. The cord is untied, the single screw drawn, and the jars lifted out without disturbing the packing one bit, or losing any of the parts. There is no littery mess about; the box is put away; when wanted after the show is over it is ready for dropping the jars into, and the honey is safely repacked for the return journey in about five minutes.

Those who have had to do with shows will know what this means, and we therefore venture to express a hope that exhibitors will earn the gratitude of officials, and at the same time conduce to their own satisfaction, by following our advice in the matter of "packing honey for shows."

It will be observed, that, in packing comb honey for traveling to shows, spiral springs are relied on for safeguarding it from damage; and for glass jars, corrugated paper is made to act as the "buffer" against breakage. Both articles are very inexpensive, the springs costing only a few pence at any ironmonger's, while corrugated paper is sold at less than a penny per superficial foot. Unlike a bee-hive, no great accuracy is required in making, so that amateur joinering is peculiarly suited for making both section crate and box for jars. At the same time any appliance dealer will make them for a very small cost when it is understood that only rough, strong articles are required.

It sometimes happens that persons have to assist in staging and unpacking who are not accustomed to handling honey, and these gentlemen are placed at a double disadvantage when bad packing has to be dealt with. Referring to persons unaccustomed to handling honey, and the many "slips" they make through inexperience, we may conclude this paper with an illustration from our many experiences. Some fifteen years ago we had as regular customers for honey the establishment in the North known as the headquarters of the Mormon community at the port of embarkation from this country to the Salt Lake. The chief elder or officer in charge was a very nice fellow indeed, highly intelligent, well read, a man of much travel, and, but for his peculiar religion, a gentleman with whom we could have got on very well indeed, especially as he knew something about bees. He was especially fond of good honey, and, moreover, was a first-rate judge of its quality. We took especial pride in supplying him with our best, and he always paid us 1*s.* 6*d.* per pound for extracted honey in bulk.

The season in question was a good one, and the honey in Cheshire was extra fine. So our friend sampled out a quarter-hundredweight; it was put into a large stone jar and taken a distance of six or seven miles to his place by a special messenger of our own, who carried it all the way. The honey was, after the long journey, safely handed over to a servant, and by him carried down a dozen stairs; and two minutes after it left his hands our messenger was asked to "come down and see what could be done, for the servant had dropped the jar!" He went and found the jar broken, the contents all over the kitchen floor, and the culprit a standing lesson in handling honey by an inexperienced carrier!

DIFFICULTIES WITH THE HOFFMAN FRAME.

FAIR AND CANDID CRITICISMS.

The honey crop in this section is over about June 1. It was below the average this year, owing to late frosts after fruit-bloom, and very dry weather in May. An average taken in this county would give perhaps 40 lbs. of comb honey per colony. The bees have abundant stores, however; and as we never lose any colonies on account of the "winter problem" there is no cause for complaint. Fortunately for us, we have no winter problem. Bees will gather pollen freely at Christmas time if the weather is fine, as it was last December.

I have used the new Hoffman frames this season, by way of trial, in 15 hives, all transferred colonies. I am afraid they will not do for this latitude. Dr. Miller's prophecy is fulfilled very exactly. That sliding of frames, and handling them in groups, of which I had pleasant visions, has gone where other dreams go. To separate those frames now, after six months' use, is suggestive of candy-pulling. By and by it will suggest the firing of toy pistols. What I shall do with them next year is a question which my prophetic soul does not like to dwell upon. The horizontal wiring, three wires, with medium brood foundation, gives beautiful results; the combs are fine. I do not like the new top-bar with beveled comb-guide. The bevel seems to act as an incentive to the bees to build burr and brace combs all over the top-bars. This in Dovetailed hives. The old thick-top-bar, $1\frac{1}{16}$ inches wide, $\frac{7}{8}$ inch deep, with flat comb-guide, gives results so much better that I shall certainly use that kind in future. For spacing the thick-top-bar frames I use the ordinary double-pointed tinned carpet-tacks. One of these is driven longitudinally into the top-bar, an inch from the end, on the left, facing you. Turn the frame around and drive another. They project $\frac{5}{16}$ in. from the top-bar. These can not be glued fast; frames are easily moved, and the whole thing is a comfort in handling. We shall have to come down to metal of some kind in those parts of frames which can be propolized.

A. T. PEETE.

Branchville, S. C.

[We have before expressed the fear that the Hoffman frames would not answer in certain portions of the South, and in those warm countries where propolis is gathered more freely than here in the Northern or Middle States; but notwithstanding that, just the other day an order came from Cuba for 5000 Hoffman frames, the party, we believe, having already tried a few during the past season. We have no doubt that the staples already referred to by other correspondents would answer very nicely; but the common run of bee-keepers would not drive them in just far enough to give exact spacing; and, of course, there is that old objection of their being in the way of the honey-knife in uncapping.

In regard to the Hoffman frames in our own apiary, we would say that we have just been out in the apiary and manipulated them in colonies that are the worst propolizers—the hybrids. We found no special difficulty in handling them, but we realize that there are some who would not like them, even in our own yard.

In regard to the burr-combs on the new Hoffman top-bars, your experience is at variance with our own, and with the reported experience of others. Although we had a very heavy honey-flow, and the bees crowded every bit of available space, the top-bars were left intact so far as the wax accumulations were concerned.]

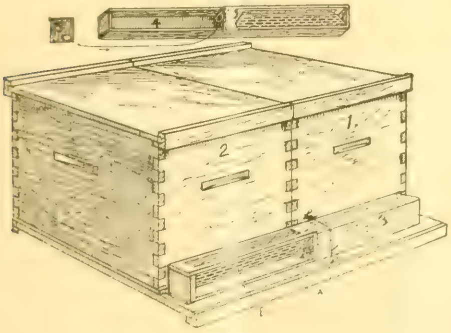
SPRAGUE'S AUTOMATIC HIVER.

HOW IT WORKS, ETC.

My hiver has proved to be a perfect success. I send you a drawing and explanation of it as you requested. The tin slide is a very important adjunct. Slide it in place, and it changes the hiver into a bee-escape from the old hive to the new.

I have just placed a new hive with one frame of brood and two empty combs by the side of an old one, and put on the hiver with the tin in place. In two days nearly all the bees from the old hive were in the new one, with five queen-cells started. You see that it will be a success so far as getting the bees is concerned. If some of them should return to the old hive when the swarm comes back, they can be gotten with one minute's labor.

I want it called a hiver and not a swarmer. When the bees are caught I want them hived, and not caught in a trap for me to hive. It is cheaper for me to keep the required number of Dovetailed hives and use them than to keep around a stack of bee-traps.



SPRAGUE'S AUTOMATIC HIVER.

Fig. 1 shows the old hive moved two-thirds its width to the right. Fig. 2 is the new hive occupying two-thirds of the space where the old one stood. Fig. 3 shows the hiver in place. Fig. 4 is a hiver leaning against the hive, giving an inside view. This should be three inches square, inside measure. Fig. 5 is a square tin, to be placed against the square zinc in the hiver after the swarm has returned. The hole is to fit the mouth of the cone, changing the hiver into a bee-escape.

The zinc in the front of the hiver is placed diagonally from the front upper edge to the back lower edge, the end of which fits closely to the little square zinc, leaving one half of the square zinc for the bees to work through without having to pass through the large zinc which is to catch the swarm. (A) is the entrance to the old hive; (B) is the entrance to the new hive. The hiver is held in place by means of one nail driven into the hive and another into the bottom-board, and connecting these with stovepipe wire.

My method of using it is, to catch the swarm in the new hive; place the super from the old one on the new one; slide the tin in place to drain it of bees and prevent further swarming; also to make the new swarm strong. I then move the old hive to a new stand, and all is done.

The cone should be 2½ inches long, with an apex ¾ of an inch in diameter. This allows them to carry the dead bees through it without clogging, and it works all right.

While I can see no improvements to be made upon this now, some one else will. Let such have a chance.

Haskinville, N. Y. **Geo. H. Sprague.**

THE QUALIFICATIONS OF AN APIARIST.

SOME GOOD HINTS FROM G. M. DOOLITTLE.

As the labors of the season draw to a close, and the long winter evenings are soon to be upon us, I thought that I might be excused if I were to say a few words on what I consider the duty of the apiarist along the line of spending these evenings in such a way that we may be gaining in knowledge regarding the pursuit we have chosen in life. Having once chosen a pursuit in life, it becomes all to look after that pursuit with all diligence; and in no business engagement is this more imperative than when the culture of the honey-bee is to be the occupation; and in no way can this be done to better advantage than in reading the bee-literature of the day. How often have I tried to get certain persons to take a bee-paper, or to send for a good book on bees, only to be met with certain excuses which went to show that the persons addressed would not make a success in bees. A man who is not willing to put a few dollars into the bee-reading of to-day shows by that very thing that he will not make a success of it; for if he has the right kind of love for the little busy bee he will devour all the reading on the subject which comes in his way, as eagerly as a hungry man eats his dinner. It is just this hungering and thirsting after knowledge regarding the practical part of bee-keeping that insures success; and unless a person does so hunger and thirst after knowledge along *some special line* of the many industries of the world, he or she will never make a success at any thing. One of the reasons why there are so many "calamity howlers" in the world to-day is because there are so many who are more interested in loafing around and listening to idle gossip than they are in their chosen pursuit in life, and take more interest in sitting around the saloon or the store than they do in studying on something that will lift them up financially and morally, or make them of use in the world. Besides GLEANINGS, take all the other bee-papers which you possibly can; and, before any of these, be sure to get at least one good book on bees. Why I say procure the book or books first, is, that no man is ready to understand the bee-papers till they are acquainted with the elementary principles of our pursuit. There is scarcely a week passes but that I get lists of questions which I know wouldn't have been asked had the writers a good book on bees, and had they read that book understandingly. From these papers and books the mind is to be stored with useful knowledge which can be put into practical use as soon as the season of 1893 opens. When I first commenced bee-keeping, I procured the "Bee-keeper's Text-book" and "Quinby's Mysteries of Bee-keeping," and subscribed for the *American Bee Journal* and the *Bee-keepers' Journal*, the two latter being all the papers devoted to bees there were at that time. By the reading of these I was greatly benefited; and from the writings of E. Gallup, L. L. Langstroth, M. Quinby, A. I. Root, Adam Grimm, and many others, I learned my A B C in bee culture.

My first year of experience in bee-keeping, by way of putting the things which I had read in practice, resulted in 12 lbs. of comb honey and one swarm from the two I had purchased to commence with, in the poorest season I have ever known in all of the 23 years I have kept bees. The next season I obtained about 25 lbs. of surplus from each colony I had in the spring, on an average. At the end of the fourth season I chronicled an average of 80 lbs. comb honey as the average surplus from each colony in the spring. During these four years I had studied, read, and practiced all my wakeful hours about the bees, having keen enjoyment in doing the same, for I never spent an hour in my life, even up to the present time, in work pertaining to bee culture without its being a real pleasure to me; and this was brought about by those winter evenings when I first began to read up on the subject. Many a night have I lain awake from one to three hours, planning how to accomplish some result I desired to achieve in regard to the practical part of apiculture, which, with the help of what I had read, caused me to accomplish what I had sought after. I have found that, if I would succeed, as far as possible I should read mainly those articles which came from the pens of practical bee-keepers, for such were the ones who made a success of their calling, and told how they did it. If you wish to learn mechanics, the mercantile pursuit, or farming, to whom do you go — the man who allows weeds and briers to grow up all over his farm and in his business, or to the man who makes a success of his every undertaking, year by year? To the latter, of course; and so we should do in bee-keeping matters. I know that many of our most practical bee-men do not write for publication, and for this reason we can bring in visiting, during the winter months, as another help along this line of our qualification. Then we have our bee-conventions, which are held for this special purpose; and while the cost may be considerable, if we improve the time as we should we can learn more than enough to make that cost good, besides the benefit which we derive socially.

All of these things are great helps to us, and should be eagerly sought after, as they will be if we have a natural qualification for the calling which we have chosen. If any person loves something else more than he does to study into bee-keeping, and does this only as a sort of duty, let him be assured that he has mistaken his calling, and the sooner he leaves it and goes to that which at all times gives him pleasure, the better he will be off in this world's goods, and the better it will be for the world.

If there are any who read this who have no love for any thing, except to sit around all winter, whiling away the time in that way, let me say to them that the world would have been better off without them, and that these lines were not intended for them, unless they can turn over a "new leaf." G. M. DOOLITTLE.

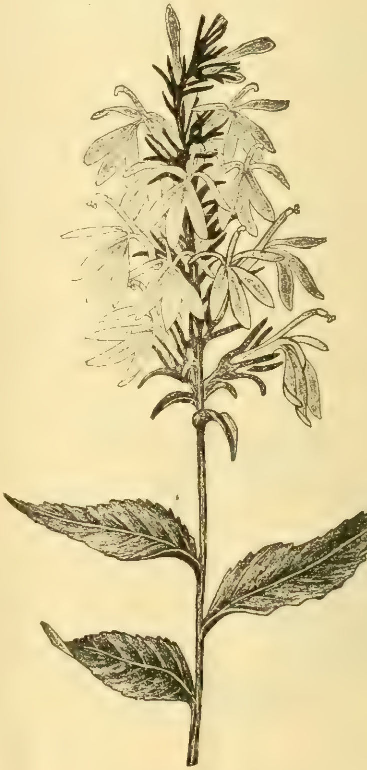
Borodino, N. Y., Oct. 18.

CARDINAL FLOWER.

SOME OF PROF. COOK'S STATEMENTS REGARDING IT REVIEWED; NOT A HONEY-PLANT.

On page 926, 1888, Prof. Cook gave us an interesting article on the cardinal flower, or *Lobelia cardinalis*, and speaks of it as a honey-plant. In a postscript he noted the fact that, in correspondence with him, I had questioned the statement that the cardinal flower furnished any nectar for the honey-bee; but from evidence which he received through friend Hilton, of this place, he was confident that I was mistaken, and that another plant must be enrolled among those which produce honey.

On p. 351, 1889, and afterward in corrrespondence with Prof. Cook, I explained my position to him. He stated to me that he himself had never seen a bee on the cardinal flower, and requested me to make investigation to ascertain the facts in regard to the matter. This I have done, and am now ready to give the result of four years' observation.



CARDINAL FLOWER.

To bring the matter clearly to the mind of the reader I will quote a passage from Prof. Cook's article, in which he nicely describes the flower; but I am certain he draws some unwarranted conclusions. Please read it carefully; and if you are not familiar with the flower, observe the cut closely. He says:

"The corolla is irregular. These flowers need the visits of the bees greatly; and let us see how hospitable they undertake to be. *Note the three broad petals. They not only say come, by their bright hues, but by the restful footstools which they offer the weary bees.* As can be seen in the figure, the stamens are united, both by their filaments and anthers, and so form a tube around the pistil. In the upper flowers that are open, we see the anthers. The style bears a tuft, or brush, which, by growth, pushes out of the stamen-tube after the flower opens, *thus brushing off the pollen. After it pushes out, the bi-lobed stigma opens.* See the lower flowers in the figure. Thus we see the pollen is shed first, and so these flowers *must* have the aid of the bees. The pollen is dropped before the stigma is matured. At the base of the style, upon the ovary, is a *copious secretion of delicious nectar.* The bees come eagerly for this nectar, and thus unconsciously cross-fertilize the several flowers. Even as good a botanist as Prof. Goodale, of Harvard, says, 'The cardinal flower, however, has so long and narrow a corolla-tube *that the bees are unable to reach the nectar*, which, moreover, is *so watery* that they do not in this case resort to their frequent expedient of biting through the corolla to get at it.' "

Prof. Cook then criticises Prof. Goodale's statement, and concludes with the following:

"We now know that this cardinal flower is a most excellent honey-plant. If I succeed in showing everybody that they ought to plant cleome for their bees, I will next try this lobelia."

The italics in the above quotation are mine.

Now in regard to my investigations. During the past four seasons I have repeatedly visited patches of the cardinal flower in a region where there are plenty of bees, and also plenty of the flowers, and have never seen a bee upon the flowers. Neighbor Ashcraft, who for two years handled one of G. E. Hilton's out-apiaries, and who is a wide-awake bee-keeper, has done the same with like results. I am certain that Prof. Goodale is correct. The nectar found in the blossom is, as he says, watery, and also rank, and I have always found it limited in quantity, and not, as Prof. Cook states, "copious and delicious." The cardinal flower blossoms just at a time when the bees are searching every nook and corner for honey. Would it seem possible that they would ignore the flower if there were any nectar there which they could get at, even if it is poor? I think not.

As regards those footstools: A bee resting on those three petals could not possibly reach the nectar, owing to the size of the flower; and then the nectar, what there is of it, is at the bottom of that long tube, entirely walled in, and decidedly inaccessible to the honey-bee. In all the flowers I have examined, the bee would need a tongue much longer than himself, and, in some cases, two or three times as long, in order to reach the nectar. The close-fitting top of the tube would not be the least difficulty the bee would have to overcome. I am positive that no honey-bee can gather honey from *Lobelia cardinalis.* And, by the way, friend Cook, did you ever see a bee, when gathering honey, stop to rest? But you will say that a bee must have a foothold. Granted; but, as just stated above, a bee on those petals could do nothing but rest.

Now comes up the question, "How are the flowers fertilized, if insects do not do the work?"

The lower flowers mature first, and in such a manner that their pollen is shed before the stigma opens, hence the stigma must receive its fertilizing pollen from another flower. At the time that the lower stigmas are waiting for pollen, the upper ones are just shedding their pollen; and what is more natural than that, as it is wafted downward, some of it should rest upon the stigma below, and do the work nature intended it to do? Nor is this so much chance-work as would appear at first, because, for each stigma, or, better, for each ovule, there are hundreds of grains of pollen ripened. This process goes on as the flowers mature on up the stalk. Another fact tending to prove this is, that the highest flowers mature no seed.

I am afraid that, when Prof. Cook wrote his article, he forgot what he has so often taught, and wisely, too, that careful, practical, personal observation is of much more value than hearsay evidence. Prof. Cook received his information from friend Hilton, who, in turn, received it from another party. I am certain that this other party was mistaken in the source of his honey.

In what I have written I have spoken pointedly; but I believe friends Hilton and Cook will take no offense, for both are lovers of the truth, and gentlemen for whose honor and scholarship I have much respect.

By the way, neighbor Hilton has just been nominated to represent this county in the State Legislature; and although the writer is a member of the opposition party, he will not be surprised if, after Jan. 1, our energetic bee-keeping friend would be known as the Hon. G. E. Hilton. W. E. GOULD.

Brookside, Mich., Oct. 12.

* * *

HONEY RESOURCES OF CALIFORNIA.

PRIOR RIGHTS TO BEE-RANGES; ANOTHER VIEW OF THE MATTER.

In a recent trip from Newhall to Mojave, from Mojave to Needles, and from Needles to San Bernardino, I had an opportunity for observing the honey-plants under various conditions of climate and at varying altitudes. In the vicinity of Newhall the three varieties of sage we have here are found on every hill; but as our train went puffing along up-grade they became noticeably less until after passing Acton, where none were to be seen, being replaced by the wild buckwheat. So it was in coming over the range between the desert and San Bernardino; first the buckwheat, and then in the warmer climate of the lower altitudes came the sages. After leaving San Bernardino the train passed through much waste country—thousands of acres, apparently, which was unfit for cultivation owing to the vast quantities of rocks which covered it. In among these rocks the white sage grew thicker than I ever saw it elsewhere. There were no apiaries in sight from the train, but surely there are many located where there is such a grand field for bees. Up near the top of the range above San Bernardino some bee-man had an apiary of several hundred colonies located about fifty feet from the railroad track. I felt envious of him when I thought what little trouble he was put to in getting his honey aboard cars, in comparison with myself who have to haul fourteen miles over the worst of roads.

From what I can hear, apiaries located at high altitudes are more sure of a crop than those located in the valleys where the sages thrive. It is probably owing to the greater rainfall which takes place among the mountains. Sometimes there are heavy rains in the mountains, when the valleys and foot-hills do not get a drop. The honey, after getting above the sage-line, is generally dark. The season, too, is later, which makes it practicable for the valley bee-men to practice migratory bee-keeping. Two years ago, after the honey-flow in my locality had entirely ceased, two mountain apiarists came to my place to purchase some foundation. Their bees were swarming, and storing in sections quantities of honey which they gathered from milkweed. I subsequently heard that their crop was a good one. Now, in a straight line their location was only some fifteen miles from mine, and in that vicinity was plenty of unoccupied territory. Had there been a wagon-road to their locality, instead of merely a very rough mountain trail, I could have moved a couple of hundred of my best stocks over there and made a big profit by so doing. Even this season, which has been so generally bad for the foot-hill bee-keepers, has, I understand, been a good one for the apiarists located in the Tehatchipi Mountains, a district in which there is plenty of snow during the winter time.

Bees are now working on goldenrod — that is, where they can find any to work on, for it is a very scarce plant with us. I am unable to ascertain why it is so scarce. I find it in small patches at both high and low altitudes, on clay and on sandy soil, seeming to prosper everywhere. It is nowhere plentiful. The alder-trees along the creeks have furnished a generous supply of honey-dew. It will come in very handy for those apiarists whose bees have not gathered enough honey the past season for their own subsistence.

The mesquite, which Arizona apiarists praise so highly as a honey-plant, is very abundant near Needles, along the Colorado River. There are no bees in that vicinity, and it is doubtful whether they could exist there, as the country on each side of the river is a desert, and, with the exception of cottonwood-trees along the river, there is nothing growing which would furnish honey except the mesquite. It would be a hard matter, too, to keep the combs from melting down, as the mercury sometimes registers there 128° Fahr. in the shade, and 115° at midnight is not unusual. The boundless desert by which the place is surrounded is, no doubt, responsible for such extreme heat—a desert in size as large as New Jersey; and, unless there are minerals on it, the whole of it not worth a bunch of wooden toothpicks. It is probably here that most of those queens die which arrive from the east.

In a section like this, where new comers are constantly engaging in the bee-business, and old hands starting out-apiaries, the matter as to the rights of prior locators on a range assumes importance. Some of the bee-men hold that he who first gets possession of a range has rights which others should respect. Some locate wherever they think it will be profitable for them, and it is on that matter of profit that the whole question hinges. "Self-preservation is the first law of nature;" therefore if a man finds that he can make a greater profit by entering into competition on a good bee-range than by going to some poor but unoccupied range, it is his duty to himself and family to do so. I can not see why a bee-keeper should be more exempt from competition than a merchant. A store-keeper who, because of prior location in a village, should protest against another's starting there would be laughed at. The bee-keeper who desires to possess in entirety a range can best do so by so stocking it with bees that any experienced person can see that it is unwise (that is, unprofitable) to locate there. An inexperienced person generally manages so badly that what little honey he gets makes no difference in the other's crop; and when located near an expert they are generally crowded out after a year or two.

If I wished to start another apiary I would get an unoccupied range if I could; but, failing in that, I would locate near the most ignorant and indolent bee-keeper I could find—some fellow who, occupying a range capable of giving fifteen or twenty tons in a good season, never gets more than from two to four tons. The successful apiarist had better make up his mind at once to be crowded, as the unsuccessful ones will never attribute his big crops to superior brains, but to a superior range, and will move their bees in to share with him.

William G. Hewes.

Newhall, Cal., Oct. 5, 1892.

[You have presented to us another view; and while a store-keeper has no reasonable right to object to another coming and setting up in the same line of business, it is possible that also a *bee-keeper* first in the field has no right to object to another locating an apiary on the same territory. But are the two cases altogether parallel? Somehow, if we had gone into a locality, and had demonstrated that it was a grand location for bees, and with that field had secured large crops of honey, we think we should be somewhat mad if some other chap should come and locate with, say, a hundred colonies within half a mile of us and cut down our yields by one-half. The other fellow would, in all probability, not have located there in the first place had he not seen we were making money. Some moral right is due bee-man No. 1 for discovering for himself a good field.

This is a hard question to settle, and, in all probability, you will hear from Dr. Miller on the other side. Of course, there is no *law* whereby the bee-keeper first in the field could secure the privilege of that field all to himself. The only thing he could do (and that is out of the question) would be to buy up, say, five thousand acres and allow no other bee-keeper to occupy that land. He then has a proprietary right to the whole field. Five thousand acres would give a bee-flight of about a mile and a half. Unless the bee-keeper has unbounded faith in his locality he can not afford to pay even 50 cents an acre. The matter as at present adjusted is a case of the survival of the fittest, as you intimate. The one who is the best bee-keeper will crowd the hardest, and at last crowd the other man out entirely. Perhaps this is right.]

THE RIGHT KIND OF ABSORBENTS.

GROUND CORNCOBS.

Much has been said pro and con about absorbents versus oilcloth for winter covering for bees. With many, absorbents and upward ventilation seem to be synonymous terms, and that, if oilcloth be not used, upward ventilation is the result. This is a mistake. With chaff cushions, I will admit, you have more upward escape of air than is good; the chaff is too light, too cellular, and not porous enough. You want a heavy, denser substance than chaff—one with more *capillary force* that will transmit the largest amount of moisture with a minimum amount of heat. Air is the vehicle that carries both moisture and heat, and the medium which will transmit the largest amount of the former and the least amount of the latter is the best.

After experimenting with various substances the well-known absorbent power of corncobs induced me to try them, using them whole and filling the interstices with dry fine sawdust, which answered very well. Afterward I had them ground at a feed-mill, and filled the boxes three inches with this meal, and I want nothing else. Cobs chopped and mixed with dry sawdust do well. This is practically a non-conductor of heat, and it is dense and porous, and has the capillary force—like blotting-paper—to carry moisture to the outer atmosphere. To illustrate this capillary force, suppose we build a new hive from lumber sawed transversely four inches thick—sides, ends, and cover, joints hermetically sealed. This would certainly be a warm hive, and, with the capillaries or pores of the lumber directed from within outward you would never find a drop of water condensed on the inside as long as the temperature within was above freezing, and the surface free from propolis. Bees in their natural homes have the benefit of this capillary force.

You say in the May issue that bees seem to get along and build up better in the spring with the oilcloth covering. That is undoubtedly so, and for the simple reason that, at that time, they need the water that is condensed on the under surface for their brood, which they for many days at a time are unable to go outside and get. At this season the absorbents should be removed and the oilcloth substituted.

Washington, Ind., Oct. 10. J. A. SCUDDER.

RAMBLE NO. 70.

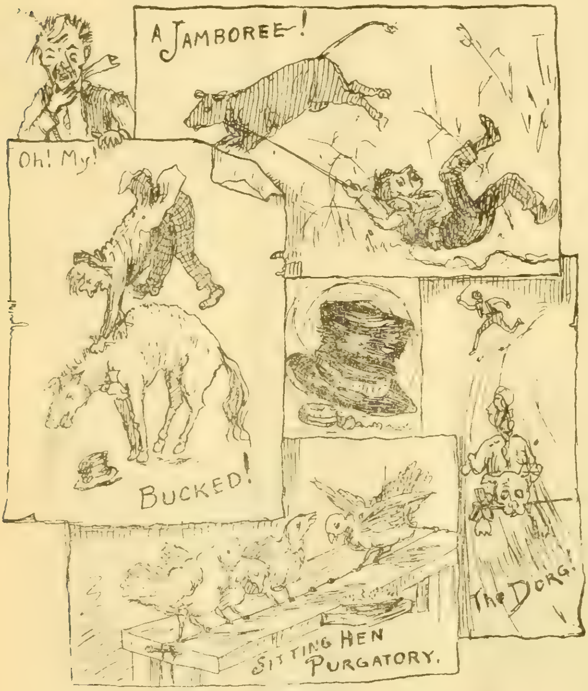
RAMBLER'S EXPERIENCE IN LIVING ON A RANCH ALONE.

I believe I have had occasion to remark, that even those bee-keepers who live an isolated and lonely life are generally quite fraternal. If you happen to drop in upon them from the outside world, and have any news to tell, or reading-matter to dispose of, it is eagerly sought. In some corner of the cabin will be found a few books, standard works, both poetry and prose, and perhaps the walls are adorned with prints from the illustrated papers. A very good idea of the character of the man can be obtained, sometimes, at a glance. In the cabin of a lone dweller of the mountains I found a great array of flashy pictures and clippings from the *Police Gazette*, and it needed no words to reveal the condition of the occupant's mind. In another cabin, though the owner was living there only occasionally, several copies of the *Free Thinker* and kindred papers were found, giving an unmistakable indication as to his belief. But whatever a man's belief, he will seldom bore a stranger with it; and of all countries this is one of the greatest in the spirit of toleration for a man's opinions and method of life, and it is well that it is so.

OFF FOR THE SEASHORE.

Although Mr. Clark (mentioned in Ramble 69) is a benedict he is full of that fraternal spirit, and stands not upon ceremony in the limitations of distance and previous acquaintance as to his neighborly feelings. I have known this to be the case when we have traveled together around the mountain, or far over the plain; and I soon learned that, when he wished "to talk with that man just a minute," and left me in possession of the wagon, the minute lengthened out inordinately. In all such cases I was very thankful to have with me my long-wind Waterbury watch; and as the minutes lengthened I would commence to wind, and usually complete the job upon Mr. C.'s return. While waiting at one place I varied the exercise by making an inventory of what I saw in a bedroom. Of course, the bedroom was a detached building, but had in it two beds, a work-bench with tools, and a good supply of bee-hive material, several bags of Egyptian corn, with evidences of mouse work; a shoemakers's bench, wire netting, shovels, rocking-chair, wagon-wheel, manure-fork, six chains, ropes, boots and shoes, wire, tin cans, and other things too numerous to mention. The occupants of the beds seemed to be haggard and worn. One was on the bed and another on a box. It was evident that their surroundings were admirably fitted to give them an overdose of the nightmare.

Though Mr. C., while on our trips, would have several of these *minute* talks, and spend considerable neighborly time helping those afflicted with balky horses, we usually made the home ranch by chore time. This humdrum of ranch life I noticed was having a depressing effect upon Mr. C., while Mrs. Clark was completely prostrated. It was of prime necessity that they should go to the seashore for their health; and in order that they might go, the Rambler consented to stay during their two weeks' absence, and care for the ranch. Mr. Wilder was off again in the mountains, and his pony and colt needed a master, and all of our apiaries needed a little looking to. Then there were bands and bands of quail that needed to be put on toast. I knew the two weeks could be well put in, and was not at all lonesome when I saw the big covered wagon drawn by three horses depart with camping and gastronomic outfit, and, with them, four of the young men and maidens from Bloomington. My animate companions were 170 swarms of bees, 100 hens, a cow, heifer, a spotted yearling; Ben, the white dog, a trio of cats, and a double-barreled shotgun, the latter to aid in preparing the quail for market.


A JAMBOREE!
Oh! My!
BUCKED!
SITTING HEN PURGATORY.
The DOG.

RAMBLER'S EXPERIENCE ON THE RANCH.

As to how I enjoyed myself and kept dull care away will be better understood by giving you a letter I sent to Mr. Clark after I had managed things for a week:

Mr. W. E. Clark,

My Dear Sir: Agreeably to promise I would inform you that I am still in the land of the living, and still clinging to your ranch. It is the same with all of your domestic critters, except that old brown hen with a lop-sided red peduncle on the top of her head. She was asphyxiated during a sandstorm that howled around here; but, don't mourn over the old hen; there has been a large increase in the hen family. Ten remarkably healthy chickens have been hatched, and are doing well. Since you went away I have put seven hens in purgatory on short rations—they wanted to sit.

The big tank of water lasted until Sunday, when Mr. S. came over and I drew up 240 gallons. I knew something would happen, and, sure enough, one of his horses kicked and broke a tug, and the very next day some animal rubbed around the faucet and let off the whole 240 gallons. I laid it to the dog, and got the shotgun to execute him; but evidence being wholly circumstantial, and the water having been placed there in violation of the moral law, I submitted to Providence and reprieved the dog. I irrigated the cattle for three days by leading them to the spring. It takes 15 gallons of water to irrigate one full-grown cow for one hot day. The weather is a trifle hot—98° in the shade.

Mr. Clark, I don't know that you know it, but that spotted yearling of yours is afflicted with the jamborees. It jamboreed me across your cornfield head first, scooped a peck of dirt down my back, and lost my Waterbury watch. I now lead the cattle with a long rope; have blood in my eye, and the shotgun in hand.

The bees are gathering a great amount of water on these hot days. They rob out half a barrel of it regularly.

Wilder's gentle pony also served me a diry trick. I tried riding her to the picket rope without a halter. She ran and bucked and rebucked, and bucked again, giving a fellow a flying-all-to-pieces sensation. I alighted quick, and sat down in the sand to collect my physiology. I now use a bridle.

I hope this will find you improving in health. Don't hurry home on my account. Every thing is lovely, and I'll stick to the ranch if it busts. I found my Waterbury. Yours, etc.,

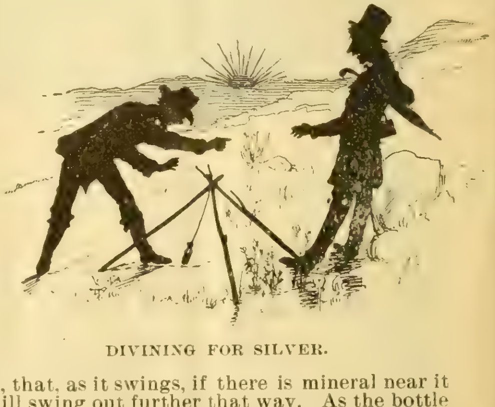
RAMBLER.

P. S.—I haven't made any butter yet; couldn't find the skimmer. Send me word where it is. R.

P. S. No. 2.—*Later.*—Never mind the skimmer. The dog ran off with the churn-dasher. Dog and I will take care of the cream. Don't hurry home. R.

Along with my other entertainments I would have an occasional caller, a wayfarer who had, perhaps, lost his way on what he would call a desert. One sturdy Dutchman, with a donkey, strengthened the word "desert" by prefixing "mill-dam" without the "mill."

My neighbor S., who kept my water-tank replenished, found a stone one day which he called silver ore, and in a few days he came over again with a divining-instrument to locate the vein. Fortune-tellers and spiritualists had told him that he was going to strike a rich mine, and he was full of faith. The instrument was an ounce bottle filled nearly full of brick-red substance, the main ingredient being quicksilver. After climbing to the vicinity of the supposed vein, Mr. S., nearly out of breath, remarked: "Say! it tires a feller right smart to climb up hyar." A tripod was made by tying the ends of three laths together. The bottle was suspended like a plummet. After bringing it to a dead rest it soon began to swing to and fro. The philosophy of the thing is, that, as it swings, if there is mineral near it will swing out further that way. As the bottle swayed more and more, Mr. S. loudly exclaimed, "Thar she draws! she draws that way. There's



DIVINING FOR SILVER.

rich mineral here somewhar. Why! an old prospector might tramp around hyar a thousand years and never find a bit of ore, while we might stumble right on to it. Don't yer see?"

After trying the divining-machine in several places the wind began to interfere with operations, and the discovery of the mine was postponed indefinitely. While Mr. S. could see it swing one way more than the other, I could not. It was a clear case of faith, and a lack of it.

There are many in California who think they may stumble upon untold wealth, and still plod through all their lives and never find it. The bright dreams and anticipations of finding it are probably as pleasurable as the attainment of the substance itself.

Our friends returned safely from their camping and bathing tour on schedule time, much invigorated in body and spirits, and ready for the further duties of ranch life. Feeling a desire to rest from the two weeks of ranch life, I retired with the pony to the quiet recesses of Wilder Canyon; and in that lonely place these lines are written by the RAMBLER.

ADULTERATION OF HONEY.

SOMETHING FROM MR. LANGSTROTH.

Friend Root:—It begins to look as though we had nearly got to bed-rock on the adulteration question. Our good friend Prof. Cook has done a very great service to all honest producers of and dealers in pure honey. As you say, "If it is indeed true that glucose adulteration can be easily detected, it is a grim fact that will make evil-doers tremble." I fully indorse what Prof. Cook says. "We know that honey is largely adulterated; but almost always, if not always, by feeding* glucose. This can be detected. Thus we can successfully fight this evil. Prof. Wiley will help us. Let us declare the battle on."

Yes, let us declare the battle on; and if we march under the banner of the Bee-keepers' Union we may expect that, in due time, the victory over *glucose* will be won.

I believe that you are safe in saying, "Practically, then, glucose is the only article that can be used as an adulterant, *at a profit.* You say, further, "Sugar may possibly be used, but we doubt it." Now, if either pure sugar syrup, of light color, or *any mixture* of this grade of syrup with the highest grades of honey should be *fed* to bees to have them produce a choice quality of comb honey for the market, it matters nothing, even if chemists should be unable to detect this product from honey entirely gathered by the bees. Without entering into particulars, it is enough to say that all experience shows that *nothing can be profitably fed to bees*, to be worked up into choice comb honey. I know that it has been suggested that a profit might be made by emptying choice sections of white-clover honey, and then inducing the bees to fill them with a cheaper substitute; but if glucose has been used in the process, detection is sure; and without, there will be no margin left for profit. Dark grades of liquid honey are too cheap to make it worth while to sugar them. Prof. Cook shows how we could feed our bees a syrup made of, say, one-third honey and two-thirds cane syrup, and the chemists could not detect it; nor could the consumer; but as it will not *pay* to do this, it will not be done.

There is still a question which I wish to submit to our friend Prof. Cook: Suppose that one-third choice extracted honey, say white clover or linden, be mixed with two-thirds choice white-sugar syrup, and the bees allowed to do nothing to the mixture, can the chemist or consumer detect the difference between this mixture and the pure liquid honey? Why this question is asked will be better understood if I quote from the first edition of my work, "The Hive and Honey-bee," published in the spring of 1853, pages 336, 337:

> Dissolve two pounds of the purest white sugar in as much hot water as will be just necessary to reduce it to a syrup; take one pound of the nicest white-clover honey (any other light-colored honey of good flavor will answer), and, after warming it, add it to the sugar syrup, and stir the contents. When cool, this compound will be pronounced, even by the best judges of honey, to be one of the most luscious articles which they ever tasted, and will be, by almost every one, preferred to the unmixed honey. Refined loaf sugar is a perfectly pure and inodorous sweet; and one pound of honey will communicate the honey flavor in high perfection to twice that quantity of sugar; while the new article will be destitute of that smarting taste which honey alone so often has. . . . If desired, any kind of flavor may be given to the manufactured article; thus it may be made to resemble in fragrance the classic honey of Mount Hymettus, or it may have the flavor of the orange-groves, or the delicate fragrance of beds of roses washed with dew.

While those who choose may make this mixture for their own use, it would surely be dishonest to sell it to the public as pure honey. Dealers who wish to maintain a high character for strict integrity should sell nothing but pure honey. L. L. LANGSTROTH.

Dayton, O., Oct. 6.

[We are glad you called attention in a footnote to what is manifestly a slip of the pen from Prof. Cook. As we stated in our last issue, page 760, we do not believe that bee-keepers feed glucose, although just one and only one case of the kind has come to our knowledge. Referring to the mixture of sugar and honey, described in the extract from your book, we are afraid we shall be treading on dangerous ground if we give any sort of countenance to it. In the first place, we do not believe that such a mixture would be profitable. Sugar is coming up, as you are well aware, in obedience to the sugar-trust. In the second place, we feel sure that we should be able to recognize sugar and honey at once by the taste, because we have already had some experience in that line. It is recommended, in some of the bee-books, to keep syrup from granulating that is to be fed to the bees for winter use, to put in a little honey. We did so last season, but not to sell it; and although we could detect a slight honey taste, a peculiar flavor of granulated-sugar syrup, such as is used on pancakes, was very easily recognized. We have no doubt that consumers would like it, but we are strongly of the opinion that they would also detect the sugar. We know perfectly well Mr. Langstroth did not reproduce the recipe simply that bee-keepers might try it nowadays, but only to ascertain whether such a mixture would be recognized as pure or mixed honey.

Aside from all other considerations, it would be very unwise, if not inimical to the sale of pure honey, for bee-keepers to put up sugar and honey as an article of sale as good and wholesome a sweet as sugar syrup is. We want no substitutes resembling honey, that will enter into competition with it. While the bee-keeper himself might be perfectly honest, and sell it for exactly what it is, a dealer less scrupulous might bottle it and sell it as pure extracted honey, leaving off, as adulterators usually do, the name of the producer. The following letter, forwarded to us by a prominent commission house in the West, will explain itself:

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* Feeding is a slip of the pen, for Prof. Cook says, "Bee-keepers do not adulterate. Dealers wholesale dealers—do this;" but dealers do not *feed* glucose; they *use* it only for *mixing*.

> I will send you a sample of honey, and say that it is composed of pure ingredients, such as sugar, bee honey, and a few other articles, which are all pure. I have been selling it around the country here at 70 cts. a gallon. It cost quite a bit to manufacture. I sell it under the name of "artificial honey," "honey syrup." I can send it in one-gallon cans or kegs, or any way to suit the purchaser. Please state what you can give for it, and pay the freight.

For obvious reasons we leave off the name of the writer.

However honest he may be in stating the truth in regard to the ingredients of the so-called honey, we are not so sure that he would be unwilling for the dealer to sell it as pure honey. We tasted some of the stuff, and it was simply vile. If you can imagine honey-dew, sugar syrup, glucose, and a little cheap perfumery mixed together, you may get some idea of what it tasted like. We would no more set it on the table as an article of food than we would introduce into our stomachs some semi-poisonous mixtures. The house that forwarded the letter on to us, apparently thought the mixer intended in the first place to palm it off as pure honey; but in response to their inquiries he finally admitted as above that there were certain other ingredients besides the bee honey. No, it won't do to give countenance to such things.

Later.—Since writing the above, the *Bee-keepers' Review* for October has come to hand, and we notice that we differ somewhat in opinion with the editor and Prof. Cook in regard to sugar-fed honey. We know these same differences are honest differences, and it is possible that we may be wrong in our position.]

SOME THINGS ABOUT ROBBING.

DR. MILLER TELLS US UNDER WHAT CIRCUMSTANCES IT MAY BE ALLOWED.

Friend Root:—That item of your experience on page 782 is quite interesting reading, and I think you are somewhat at fault that you do not give us more of the details of your own apiary, particularly the bad things. I am glad you have learned that, under proper management, robbing is not such a dangerous thing. It is hard to know just what is the right ground to take in this respect; for few young bee-keepers, until they have had some sad experience, have any just conception of the danger connected with robbing.

I would give something to make my assistant as afraid of robbing as I am. In former years I had such a severe breaking-in that the sight and sound of a single robber when I am at work strikes me with alarm. But Emma has not had the same experience, and can work on placidly with the music of robbers about her. I say to her, "You must be very careful or the robbers will get the start of us."

"Oh! I guess not. I haven't seen any yet."

"Why, don't you see them there this very minute, right under your very nose?" and the emphasis I give is perhaps not as pleasant as it ought to be; for if there is any thing that demoralizes me it is to have robbers offer their assistance when a brood-chamber is open. So it is that it is considered not the orthodox thing to say any thing in favor of allowing bees to do the least thing in the line of robbing. Too often, however, it is the interference of the officious bee-keeper that makes most of the trouble. A weak, queenless colony is attacked; and the only thought in his mind is, that that thing must be stopped. So the hive is taken away, perhaps put in the cellar for a time, and the robbers, not finding their prey in its proper place, pounce upon the nearest hives, which, in their turn, are taken away and thus the trouble spreads.

On another occasion a similar case occurs, but the bee-keeper is in blissful ignorance of it; and the first thing—in fact, the only thing—that he knows about it is, that the hive is completely cleaned out—cleaned out several days before he noticed it. In that case no harm is done. The colony was not worth saving, and perhaps it was a good thing to have the honey transferred where it would do more good.

I very much doubt the correctness of the time-honored tradition, that, if a bee once does any thing in the line of robbing, she will never return to honest labor afterward. You know very well, that when, by reason of bad weather, the honey flow suddenly stops, care must be taken not to start robbing; and if by some carelessness it is started, and perhaps 20 pounds of honey robbed, thousands of bees being engaged in the plunder, if the next morning opens up clear and bright, honey yielding freely, every bee in the apiary will seem to be hard at work. Where are the thousands that yesterday were robbers? Don't tell me that none of them have gone back to honest ways.

Last spring the disastrous losses left a large number of hives untenanted; and the combs, numbering more than a thousand, had more or less honey in them. The fuller combs were convenient to put in colonies needing them, but a great many had only a little honey in them. What was to be done with them? They might stand as they were, but on the whole it was perhaps better that they should be emptied out. Perhaps you may remember that they were hung overhead in the cellar. Well, the door of the cellar was left open and the bees were invited to take possession. They promptly accepted the invitation.

Now, there were two things that surprised me. One was, that it took the bees so short a time to clean out those combs. Another was, that it took them so short a time to settle down quietly after they got through the job. For a half a day or a day after the honey was gone there were more or less bees searching through the cellar, and at the end of that time there was nothing in the apiary to indicate that any thing unusual had been going on.

Another thing, if you allow a section of honey to stand out, the bees will tear it all to pieces. These combs I have been telling about were not torn at all. Whether it was that they were tougher, or that the bees had so large a surface to work over, I do not know; but I am inclined to the opinion that bees do not tear old combs so badly.

When the clover harvest closed, what little there was of it, all sections were taken off. A goodly number of supers had so little done in them that the best thing was to have the bees clean them out. A somewhat large experience in trying to get bees to empty sections on or under the brood-chamber made me dissatisfied with that sort of thing. So one day a number, perhaps 15, of such supers were piled up in the cellar in such a way that not a very large number of bees could enter at a time. They were promptly cleaned out; and 24 hours after the work was finished, there was no commotion in the apiary. The same thing was repeated with a larger number, and with the same result.

Now I'll tell you what I think. If you had allowed the bees to work on those combs that you had piled up, without restricting their entrance so much, the result would have been the same, provided you did not take the combs away till after the bees had emptied them, and had got discouraged working over them. The whole matter lies just in this: If bees get to robbing you must not take away every thing they are working at, but leave them to work on that very same spot until they are satisfied that they have finished up the work themselves. Perhaps it may do to empty out a hive they are working at, providing the hive itself is left, and nothing about its appearance changed; but I think I would rather leave some comb in the hive for them to work at. I fancy I see A. I. R. shake his head when he reads this, saying, "That's dangerous. We can't be too careful about the matter of robbing, and hardly ought to publish any thing of the kind." Yet the whole truth ought to be known. I'm just as much afraid of robbers as you are; but I believe it's well to be posted on all points; and with that never-failing safeguard, the footnote, I feel sure all will be well. C. C. MILLER.

Marengo, Ill.

[We indorse every thing you say; and, like yourself, we are afraid of robbing, and only wish that our helpers regarded it with the same fear. We can not ourselves endure to have even a single robber hovering over the frames, while our helpers think nothing of it to have as many as half a dozen. To use a colloquial phrase, we have been "through the mill," and know the bad results of allowing the bees to pilfer from hive to hive. While we hold robbing in great fear, we are inclined, on the other hand, to let the bees, under *certain* circumstances, help themselves. A year ago last summer, at the Shane yard, as a result of transferring the bees on to Hoffman frames, we had a quantity of old crooked combs in home-made loose frames—too crooked to be used in new frames. Instead of transferring these we carried them a few rods from the apiary and laid them in the shade of a tree; but, mind you, we did not expose them until we had finished work in the yard. On one or two occasions we waited long enough to witness the result. The bees pounced on to the combs in a perfect storm, and speedily emptied them of every thing sweet. The next day we returned and found the apiary comparatively quiet, nor were there any dead bees at any of the entrances, as a result of previous conflict. One time, we remember very distinctly of setting a couple of combs under a tree a few rods away, while we were in the midst of our work. All at once the bees began to be cross, and to pilfer over the top of the hive. The first incoming laden bees notified those already in the hives that honey was to be had *somewhere.* As we have noticed many times before, they began to hunt around, and, very naturally, turned to the hives where we were working, because they had not yet discovered the source of honey from which the first supply was obtained. It is needless to say we stopped right then and there.

MORE ABOUT THAT STACKED-UP-HIVE FEEDING.

Now, we would by no means advise the scattering of partially filled combs a few rods from the apiary where it is located near dwelling-houses; but in out yards situated as was the one mentioned, nearly a quarter of a mile away from buildings, it may be done at times to advantage. The plan that can always be pursued safely where it is desired to empty out combs containing a little honey, is, to place them in hives stacked up two or three high, with a small entrance, as explained in our editorial on page 782. While these stacks of hives, we know by experience, *can* be placed right near the driveway, and yet horses and persons can go by without the least interference, we would not recommend it.

This plan of feeding creates an artificial condition of things during a dearth of honey—that is, a dearth from natural sources—much like that when honey is coming in freely from the flowers in nature's own way. Instead of robbers flying around and stealing, they are given something to do; and the result is, that we have been able, during the past few days, to go on with our work of uniting, etc., in the apiary, with very little interference from robbers. And, again, we observe the honey itself is being distributed throughout the apiary, not, as we should naturally suppose, in the strongest colonies, but with a very fair and even distribution throughout all the hives. Our Mr. Spafford said that he could see the result of this open air feeding in the hives. Queens were beginning to breed, and every thing was going on just as if nature had taken a sudden boom. Nearly every apiarist every spring has a few combs containing a little honey; and what a good effect this kind of outdoor feeding may have in stimulating brood-rearing at the time of year we most desire it, with so little labor, the reader can figure out for himself. Besides the increased amount of brood-rearing, he will have a lot of nice clean dry combs, no more tempting to robbers later on in the season.

We are sure that bee-keepers have not yet experienced the many advantages that may accrue from this kind of feeding. They have known of it, it is true, but have not as yet utilized it. Now, doctor, while we may be at fault for not giving more details of the work in our own apiary, we hope we have redeemed ourselves, at least temporarily.

P. S.—A. I. R. has witnessed the results of this stacked-hive feeding *a la* Miller, and acknowledges that it is a success in more ways than one. At first he felt a little skeptical about it, and was slightly alarmed lest we "boys" might be getting ourselves into trouble.]

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

BRITISH BEE-KEEPERS AND THE WORLD'S FAIR AT CHICAGO IN 1893.

As will be gathered from a perusal of the proceedings reported in this issue, the interesting discussion which took place at the monthly meeting of the British Bee-keepers' Association on Wednesday last, on the subject of sending an exhibit of British honey to Chicago, resulted in a unanimous resolve on the part of the Association to take immediate steps for putting the project into practical shape. To do this, it is obviously necessary to secure the cordial co-operation, and, we trust, willing assistance, of bee-keepers themselves.

Had the season of 1892 been a thoroughly good one, with abundance of honey in the homes of all who keep bees in the United Kingdom, little difficulty would have been experienced in getting together an exhibit of a couple of tons of nectar as a "sample" of what our islands yield; but, unfortunately, the results have at best been only moderate, and in consequence the field on which we have to work is considerably reduced, and the enthusiasm, which otherwise would have been aroused, proportionately lessened. However, the committee, in order to meet this difficulty, have hit upon a plan by which a good show of honey may be secured without taxing either the pockets or the (bee) patriotism of our bee-keepers to any but a very small extent.

Without pledging ourselves to exact details, it may be said that, in substance, the plan is to invite contributions of honey—good, of course—in quantities of five pounds and upward, to be forwarded in bulk or otherwise to a depot at a given center (probably Liverpool, as the port of departure), where it will be received by representatives of the B. B. K. A., for bottling, package, and transhipment to Chicago. An important point to be borne in mind by gentlemen interested in the project is, that the honey sent *need not be the product of the exhibitor's own bees;* the only proviso being that the locality in which the honey is gathered must be stated, so that many who would have sent their own honey in a good season will, by purchasing from those less able to give away their produce, be enabled to further the scheme at a very small cost. Further, the name of each donor will appear on his portion of the exhibit.

Seeing that an opportunity of staging British honey alongside that of other countries, in so prominent a manner as the Chicago Exhibition offers, is not likely to occur again in our generation, we hope that our readers—with whom the matter may be said to entirely rest—will rise to the occasion and lose no time in making known to the secretary of the B. B. K. A., or to ourselves, the extent to which they are willing to assist. The exhibit will, no doubt, be seen by several millions of persons of all nationalities; it also goes without saying, that American bee-keepers will welcome a good display from the mother country; and as all cost and trouble connected with it will, as already stated, be borne by the B. B. K. A., we trust to hear without delay from intending donors, in order that an approximate idea may be arrived at with regard to the amount of space to be applied for. Preliminary inquiries may be addressed to this office, or to the Secretary of the B. B. K. A., at Kings Langley.—*British Bee Journal*, Sept. 29.

A LITTLE FOUR-YEAR-OLD DAUGHTER OF MRS. JENNIE ATCHLEY WHO CAN CAGE BEES AND QUEEN IN A MAILING-CAGE.

I must tell you of a visitor. It was a little wee tot of a four-year-old baby girl who came to see me not long since. She astonished all in the apiary by coming up to where I was caging queens. She took hold of a cage, and, almost too fast for the eye to perceive what was going on, caged the bees and queen. I learned from her how to put the bees in a cage; but we just had to console ourselves by considering the source whence she came. She was a daughter of Mrs. Jennie Atchley. W. R. Graham.

Greerville, Texas, Oct. 8.

[Well done! If Mrs. Atchley will send a picture of the little girl we will introduce her to our readers.]

WHY DO THE BEES KILL MEMBERS OF THEIR OWN FAMILY?

Prof. Cook:—I mailed you some dead bees from a colony that kills numbers of their own family. I asked Bro. Root, of Medina, about them. He says that I must be mistaken—that they must be drones, referring me to the A B C. What do you think is wrong with them? The colony is strong, active, and has lots of stores. I am positive they are not robbers, as I have only one colony of blacks or hybrids, as they are. All my other colonies are pure Italians, or nearly so, and can easily be distinguished from this. This is why I send from this colony for examination. My Italians act the same way. They pull them down from the combs, and drag them out in the same manner as they do the drones, but they sting, very nearly all of them, which they do not always do with drones, as they often carry out drones and let them look out for themselves, guarding their entrance well, and not permitting them to enter. But the samples I send you are nearly all killed by the bees themselves. I wish you would examine samples, and give result through Gleanings. J. M. Fisher.

Reading, Pa., Oct. 3.

[Prof. Cook replies:]

These bees seem very small. I presume that they are ailing in some way, and so are rejected. Such bees should be fully studied by a competent bacteriologist. He, perhaps, could show cause. A. J. Cook.

TWO GOOD POINTS IN FAVOR OF THE NARROWER SECTION.

This question came up twice at our State convention, but no discussion on the subject was made. Eugene Secor thought that wide sections are not capped over as soon when nearly two inches thick—a thing of considerable importance—while W. C. Frazier felt quite sure that eight to the foot would be the nearest right. D. Benton, my neighbor, uses seven to the foot, and I feel sure that his sections are capped sooner than mine, which are 1⅞ inch, and do not stand so much in need of separators as do mine; and if sections were eight to the foot would they not be built much straighter, and be ripe and capped nearly as soon as built? To be sure, if full sheets of foundation were used this would be one point against these very narrow sections. I think that quite good combs might be built in them by using starters only; but I presume that the untasty drone comb would, with the latter plan, be built. The grocers here will pay only 10 cts. apiece for sections of comb honey; and if they were built eight to the foot then we could sell our honey at home at a fair profit—about as good as 15 cts. per lb. I know it has been claimed that it would not be an honest pound; neither are 1⅞ sections an honest pound; and I can see no dishonest act about selling sections by the piece. I have spent much thought on this matter, and I hardly know which would be best for us. Frank Coverdale.

Welton, Ia., Oct. 11.

[We can't discover that there is any cheating when honey is sold by the section. If you can get more money for narrower sections, use them.]

A GOOD SEASON FOR BEES.

This has been a good season for bees in this vicinity, where they have had the necessary care and attention that bees have got to have to make a success with them. Our principal honey-flow has been from basswood and buckwheat, some from goldenrod and other wild flowers. I have managed my bees for increase and comb honey. I had four swarms in the spring. Three were quite weak. I now have 12 strong swarms, and have taken off 350 lbs. of comb honey. The honey season was over here Sept. 15. R. S. Noddins.

Fenwick, Mich., Oct. 12.

BEES NEVER IN BETTER SHAPE FOR FALL.

There has been no frost to kill flowers yet, and bees are still making their living. They have never been in better shape to winter than they are this fall. Hives are full of good thick well-sealed honey, and plenty of young bees are hatching now, and some of the queens are still laying. I got a fair crop of honey, and fine as to quality, mostly extracted. I have been in this State ten years, and this is the first fall that has been worked after Sept. 20, and some swarms are now killing drones that have been raised lately. WM. URIE.

Minneapolis, Minn., Oct. 10.

A GOOD FLOW OF HONEY.

I started the winter with 95 colonies. I had to feed $30.00 worth of sugar to provision them for winter. This I did not do until the last of September—too late for brood raising. What little honey they had was honey dew. Only five died through the winter, and they were queenless. The first of April I had 89 colonies. The weather was very unfavorable—wet and cold up to the middle of June. At this date I had only 43, and half of them furnished no surplus. I increased to 70 by artificial swarming, and took 1100 lbs., mostly extracted, gathered largely from alsike clover—as fine honey as I ever took. I have 1000 lbs. ready to take, of fall honey; and if frost keeps off this month I shall get another thousand from not more than 25, spring count, so I am not discouraged. There is as good a flow now, Oct. 10, as I ever saw, largely from heartsease and Spanish needle. Bees are building comb almost as well as earlier in the season. There will be no discount in wintering this winter. They are raising plenty of brood. I had a swarm some three weeks ago.

ALSIKE AND PEAVINE CLOVER.

I had made up my mind one of our dry summers, that peavine clover is the best of honey-plants; but this year bees did not work on it at all, while alsike was good. It did not commence blooming until the middle of June.

New Sharon, Ia., Oct. 10. GEORGE BRIGGS.

OURSELVES AND OUR NEIGHBORS.

Prove all things; hold fast that which is good.—I. THESS. 5:21.

A few days ago one of our readers mailed me a paper entitled the *Michigan Messenger*, extra. It comes from Adrian, Mich., and is dated Sept. 17, 1892. He wrote me at the same time, that, if I would just read St. John's speech in said paper, he would be very much gratified. I have read it, and I am very glad he sent it to me. I wish every man and woman in the United States could read it. It may be that the statements that St. John makes are not all true: it may also be that some of them are misleading; but for all that, I wish everybody might read it. But I propose to consider only one small part of it; and while I consider it, I feel how utterly unable I am to handle such matters. I know I am ignorant of politics; and I have been blamed, and it seems to me I have been somewhat abused because I am ignorant and confess my ignorance. Gently, dear friends. A lady of my acquaintance once took our good pastor to task (she did it very mildly, of course) because he did not preach *temperance* more strongly. He replied that God called him to preach Christ Jesus, and not to preach temperance particularly, and this I wish to make as one plea for my ignorance. I feel that God has called *me* to preach (in my own way) Christ Jesus. I am well aware, when I say this, that I have done it but poorly and imperfectly. I have wandered from the dear Savior more than once. May he give me grace and strength that I may not wander from his dear name when I speak to you to day. Another thing, I have not the physical strength to read and study up matters of government and state. My nervous strength for mental work even now is limited. Daily and hourly I must decide what has the greatest call on this remaining strength. I can read but little compared with what I used to read in former years. In view of this, what should I read next to my Bible? God surely calls upon me to keep posted, at least to some extent, in regard to matters of government. I love my native land. I am proud of our great republic, even with its grievous faults and failings; and when these faults and failings are held up to my face, so to speak, what can *I* do to bring about a better state of affairs? I can trust in God, and I can ask him to direct me; and then I mean to follow that direction so far as my strength and wisdom will permit. Now, dear friends, after I have done this, please do not complain. You may *suggest* to me, if you choose, that, from *your* point of view, I am not voting as I am praying; but please do not *throw* such remarks at me, and insist that I am not honest and sincere because I do not see my way clear to vote just as you do. And now for my brief extracts:

> A few months ago an old church deacon said to me, "St. John, I am redhot." I said, "Thank the Lord, deacon. I have been waiting for something to thaw you out for the last ten years. What is the matter?" Said he, "I have just learned that the government is promoting the beer business."

After reading the above, and a little further along, I confess that, for the time being, I was like the old deacon. If I wasn't "redhot," I felt desperate, if that is the right word. I was ready to stand up and declare that these things should no longer be so, no matter what it cost or what the sacrifice. There are certain crises in our lives when we almost feel justified in saying, "If this thing is going to cost us our lives, then our lives will have to go in the attempt." I felt a good deal that way at the time, and I feel a good deal that way even now. Now, here is what made the old deacon "redhot:"

> I said to the old deacon, "Yes, I think I know what you mean. You refer, no doubt, to a pamphlet recently gotten out by the Department of State, in relation to 'Malt and Beer in Spanish America;'" and he said, "Yes, I guess that is it." I said, "I know it is." I sent on and got one, and I have it here. Just listen to the title of this work, published by our government:
>
> "DEPARTMENT OF STATE AID TO BREWERS.
>
> "Malt and Beer in Spanish America." Where would you think such a document emanated from? Naturally from the brewers, wouldn't you? Yes. But let us see what it says. "Report of the consuls of the United States, in answer to a circular letter from the Department of State, in relation to malt and beer in Spanish America. Published at the public printing-office at Washington, D. C." Preachers, teachers, bummers, saloon-keepers, tramps, and thugs all chip in to foot the bills for this document. "All requests for these reports should be addressed to the Secretary of State." Let me read you the circular letter that preceded this disgraceful document:

Department of State, Washington, D. C., Dec. 15, 1889.

To the Consular Officers of the United States in Mexico, Central and South America, and the West Indies:

GENTLEMEN: Some of the leading malsters and brewers in the United States have requested the department to procure information relative to the malt and beer trade in your respective districts.

The information desired covers such points as the following:

1. The imports of malt, and whence imported; duties charged thereon; cost of same per bushel, whether imported or locally prepared, etc.
2. The imports of beer and whence imported; in bottle or wood, and duties charged thereon; kinds of beer most suitable for local consumption; detail concerning prices, wholesale and retail, of foreign and domestic beer, etc.

3. How imported malt and beer are placed on the market, etc.

The motive of this circular being the enlargement of American trade, you will not confine yourselves to the above interrogatories, which are to a large degree suggestive only, but will give as much information as possible concerning every phase of the malt and beer business, so that the malsters and brewers of the United States may fully understand the requirements necessary to successful trade in each district.

All foreign weights, measures, and money should be stated in American equivalents.

I am, gentlemen, your obedient servant,
Wm. F. Wharton,
Assistant Secretary.

Listen, citizens: I read from the report of Warner P. Sutton, one of these consuls. He says: "If the duties were reduced one-half, we could easily send in a million dollars worth of our beer."

You will notice that St. John reads the above from a government document. The date, however, is Dec. 15, 1889. I read the rest of his speech clear through anxiously, to notice whether, during the last three years that have passed, something hadn't been done to change or stop the business of extending the beer-trade in foreign lands where we are sending missionaries to preach Christ Jesus. Then, again, I reflected that we as a people have different ideas concerning the beer-trade. I supposed, however, that the government itself had only *one* idea. While in Arizona and California I asked in different places and at different times in regard to intemperance among the Indians. I was greatly rejoiced on being told there was very little of it. Saloon-keepers may sell liquors to white men, but not to Indians. The laws of the United States are terribly severe on anybody who sells intoxicating liquors to the Indians. I think my brother at Tempe told me that it was a penitentiary offense to sell an Indian a single drink. If a savage becomes intoxicated he is crazy. He knows no restraint such as a white man generally does. His old savage nature that has been under control and very quiet a few years breaks out with the fury of a mad man. It would not do at all to let Indians have access to drink as we do white men. If I am making a blunder in this, there are certainly those among our readers who can correct me. I know that I am at least partly right about it. Well, then, how is it that this same government of the United States, that has taken such pains to keep liquor from the Indians, proposes to *encourage* the very thing? You may say this scheme of sending our beer, and teaching foreigners or savages to drink, is outside of the United States—it is in *South America*. What sort of reasoning is that? Why, there is something *terribly* wrong about the management of our affairs, surely. This William F. Wharton is, I believe, Assistant Secretary of State of the United States. Perhaps I am only exposing my ignorance further and further. Never mind. Perhaps Gleanings can not give very much publicity to this document; but it can give some; and, even though its readers may be *comparatively* few, they are earnest, intelligent, and thinking men and women. I know, because I read your letters.

Some of you will tell me that the government of the United States is a peculiar institution; that it is a pretty hard matter to have it even *consistent* in all its branches and ramifications; and I presume some allowance should be made for this. Others will tell me that it is *all* corruption and greed and bribery, any way. I think I know this latter is not true. It is the best government, the most Christian government, that can be found on the face of the earth; and I believe it is the best government under which a poor man can live. If it is not, where is there a *better* one? and are people flocking to it as they are flocking to *our* shores? A great many times, when people find so much fault with our laws and law-makers, and of our government in general, I feel a good deal like saying, "Why, my good friend, if things are so *awful* bad here, why don't you go off to live in some other country, where they are honest and righteous, and upright and pure?" Well, it transpires that this government is even now pushing the beer-trade into foreign countries, right along side by side with our missionaries; and I think I have before heard it intimated that whisky, and other intoxicants to be sold to the natives, often go on the *same vessel* with the missionary. If this is true, what shall be done about it? In one sense I do not know; but when I say I do not know, of late there comes up in my mind again and again a fragment of a little hymn:

I am weak, but thou art mighty;

and we Christians know—or, at least, we *ought* to know—that one man with God on his side is more than a match for hundreds or thousands of the ungodly. The first thing to be done, then, is to be sure that God *is* on our side. Of course, God does not take sides or change sides; but if he does not, *we* do, because we are weak and human, therefore we want to be on God's side. But who shall tell us which *is* God's side and which is not? He himself will tell us by his Holy Spirit; if we seek his counsel and his aid he will certainly make it plain to us sooner or later what his wishes are; and this is a very comforting thought to me. It is not my duty to depend upon *anybody* as to what I should or should not do. "Him that cometh to me I will in nowise cast out." I wish to make another quotation. This time I am going to quote St. John himself. Here is what he says:

GOVERNMENT COMPLICITY IN THE BUSINESS

Did you ever think of it, you church people, that our government is in partnership with this business? It runs every distillery just as much as it runs the postoffice. Its officer carries the distillery key; he unlocks the building in the morning, and locks it up at night.

My impression is, that the above is rather extravagant. Well, if it is not true, that making whisky is getting to be like managing the postal department, what *is* true? I think there is some truth in it, from a little circumstance that came under my observation a year ago. One of the boys who used to work for us went to Oberlin to school, and is now principal of the schools in a small town in our State. I visited his school, and objected to a certain loose way they had in that community. Certain big boys, who looked as if they were more at home in a doggery than in a schoolroom, had a fashion of coming to school and calling themselves "visitors." The visiting was done by going and sitting by the nice-looking girls, and whispering silly things in their ears during recitation. Of course, I did not *hear* what the whispering was—I judged only by the result. As soon as school was closed I made a vehement protest. Our young superintendent said it was a "fashion" they had in that neighborhood, and it could not well be stopped without making a commotion. I pressed my point as follows:

"Why, go to the directors; state the case to them; give them your opinion in regard to the matter, and, with their sanction, let the commotion come. I would stop it or I would hand in my resignation."

"Mr. Root," said he, "if you knew the directors as well as I do, I don't think you would undertake it. The principal one is the largest owner in the government distillery right over there on the side of the hill. He is the most influential man, and is well off; but he would think this matter of the interruption of the studies so trifling that it is not worth while to make a fuss about it."

"But, my friend, the interruption of the *studies* is a small matter. If that fellow who was in here this afternoon should go and sit by a daughter of *mine*—yes, I have a girl just about the age of that one, between fourteen and fifteen—if that low-lived fellow should go and sit in the seat beside her, and whisper and look at her as he looked into that honest, childish face half an hour ago, I could hardly restrain myself from giving him a horsewhipping. If that girl's mother had seen what was going on here this very afternoon she would be like an enraged tiger, and she ought to be."

I had heard a good deal about the government distillery, their nice apparatus and beautiful building, and I walked over and took a look at it. It was not running then; in fact, it hadn't been running for some time; but I looked in through the windows, and saw the nice apparatus, the beautiful furniture, the fine building, built without regard to expense, and pondered. Such a building looked out of place in that poor little town. Near it was a neat little office. A sign over the door proclaimed it to be the office of Government Inspector of Liquors. I can not remember the rest of it. Our young superintendent had an entertainment at the close of his school, to show the proficiency of the scholars. They charged an admission fee, and he had worked hard that they might have sufficient proceeds to purchase a library for the town and school. The pupils and teachers all did their best, but they succeeded in raising only a paltry sum, say between $20 and $30. The saloon-keeper across the way made his boast that he took in over *$100;* and my young friend said there was a steady stream of men and boys from the hall where the exercises were held, across the way to the saloon, *during the whole of the exercises*, and yet this was a little town of less than a thousand inhabitants.

Now, then, friends, if St. John and I have got things wrong, will some wise, honest, kind friend set us right? I do not care what political party you belong to; and it surely does not make any difference whether you belong to the same church I do or not; but I hope that, when you attempt to set me right, you will do it without bias or prejudice. St. John says that ignorance and prejudice are the worst enemies we have to battle with. May God have the mercy, goodness, and love, to deliver us from both.

You may think I am getting discouraged and disheartened lately. No, I am not. I am full of faith in my country. My faith in God is stronger, I am sure, than it ever was before; and my faith in you, dear reader, is bright and clear. I love my fellow-men—yes, I love them while it grieves me to the heart to know that they think our institutions may be built up by sending beer and liquors to South America.

No doubt it is a good thing to get "redhot" occasionally, as the old deacon did; but we want to be sure we are right before we go ahead: we must not be in haste to think evil: but, in the language of our text, we as Christians must prove all things and hold fast to that which is good. Temperance people and Christian people often harm the very cause so dear to their hearts by want of charity and perhaps want of the virtue expressed in the little text, "Thinketh no evil." Let me illustrate: A few days ago an individual came to me and commenced something in this wise:

"Mr. Root, I presume you are not aware of the amount of liquor that is sold right here in our town, even though we have no saloons. You are *surely* not aware that a liquor-car comes to our station here every Sunday morning before daylight, bringing beer and other liquors that are hurried off to people's cellars to be afterward retailed out and divided around. And perhaps you would not believe me if I should tell you that some of your own hands—some that you regard as most faithful and trustworthy, are engaged in this work. Now, what I want is a little money to set a detective at work and to go into these people's cellars and show up to the *light of day* the iniquity that is going on here in our midst."

"But, my friend, you are surely mistaken in saying that any of *our* help is in this business, even if such a business exists."

"Indeed, I am not; and if you will consent to believe your own eyes, just get an officer of the law and see what you will find. Of course, you would not believe that your friend X and your friend Y and your friend Z were in any work of this kind. But, Mr. Root, you have yet to learn how eager these German people are to turn a penny when they think they can do it without being discovered."

Now, I think I know our Medina people pretty well; and I have always thought I knew my German helpers pretty well; but as my informant went on, the poison began to enter my heart. However, I had the good sense to insist that the thing was impossible, even while I began to think these people might be capable of such evil. I knew that a very good Christian woman lived at at least one of the places mentioned, and I suggested that surely no such proceeding could go on there without her consent or knowledge; but my informant said something like this:

"This good woman of whom you speak did at first stoutly object, and refuse to have any thing to do with it; but by and by she said less about it, then kept still, and is now as active in making money out of it as any, and even her *children* are helping."

I began saying to myself, "What an awful story of depravity is this! Surely sin and Satan *are* abroad if this thing be true." But I kept these feelings back, and simply said,

"No, I will *not* give ten nor even *five* dollars toward employing a detective. My experience with detectives has not impressed me very favorably. I will, however, go to some of these friends and get at the bottom of this matter."

"Oh! you must do no such thing; you will put them on their guard, and make it impossible for us to get any clew. I was afraid when I came to you that that was just what you would want to do."

Within a few minutes I met one of the parties mentioned. He was busy drawing dirt. When I asked him if he could stop just a minute he replied, "Oh, yes! certainly;" and as he jumped from his load and stood by my side with his frank, manly countenance, I felt ashamed of my suspicion, and felt more like asking God to forgive me that I had ever thought an honest, hard-working man like himself could be secretly engaged in the whisky-traffic. In fact, I felt so much ashamed of myself that, without touching the point at all, I said, "X, do you know what I want to talk to you about?"

He at once smiled in his straightforward, honest way, and replied, "Yes, Mr. Root, I guess I do."

"Well, X, how much truth is there in what I have just heard?"

He dropped his head just a little, and then he went on something like this:"

"Mr. Root, you know my wife has a baby, and she does not get along very well, and is not very strong. The doctor said I should get some beer for her, and I did so, and it is in my cellar. I tell you the whole truth about it."

"Very good, X. If the doctor told you to get some beer for your wife, it is your own business, and not that of anybody else, that I know of; only I think the doctor is mistaken in some of his ideas. The only thing about it that interests us is, have you sold or given away any of this beer that you got for your wife?"

"No, Mr. Root, I have not, and I am not going to."

"And you are quite willing that I should go up to your house and look through your cellar, as I have been told to do?"

"Why, to be sure, Mr. Root. We should be glad to have you come up to our house any time, and go into the cellar or anywhere else you want to go. Nothing would make us *more* glad than to have you come and see us; but please come *upstairs* too, and see the baby."

The genial, kindly good nature that beamed in his face as he spoke the last words placed him, without a doubt, *very far* higher up (even with his beer for his wife and baby), than the person who had tried to poison my mind by telling me these false and wicked stories.

"Look here, X, have you any idea why this person should come to me with such a string of falsehoods as this?"

"Why, yes. We had trouble about building a sidewalk. She threatened me, and said if I didn't do as she wanted me to she would go to *you* and get me turned off."

"And did you believe that anybody could come to me and get one of my good friends turned off when he is doing his duty as well as he knows how?"

"Why, Mr. Root, I didn't *think* you would do so; but yet it troubled me a little, after all."

One other of the three, a most careful, conscientious boy who goes regularly to Sunday-school, and tries to do right as well as he knows how, actually cried when I came to him about it. I do not know but my faithful little friend felt hurt to think that I should even *inquire* in regard to such a charge; any way, he *ought* to have felt so, and I beg his pardon from the bottom of my heart. Now, do you see the moral? "Prove all things; hold fast that which is good." When you are getting "redhot" in regard to the iniquity there is in this world, go slow. Don't be in haste to believe all that is told you. Some astounding things are said, and once or twice in my life I have heard statements from the speaker's stand that were almost as much out of the way as the story I have told; and when you hear such stories, be careful how you repeat them. Don't even tell your wife until you have first gone straight to the one who is accused; then, if nothing else can be done, hold the offender up to public gaze. I earnestly hope that this charge that our government is even *now* at the *present time* helping to push the liquor-traffic into foreign countries is a mistake. No harm can come from giving it publicity, any way, because the charge is already being made and scattered broadcast. Let us go forward hand in hand, with malice toward none and charity for all; and if it be really true, as St. John has it, that ignorance and prejudice *are* the worst foes we have to fight, let us fight ignorance and prejudice; but let us first get thoroughly *acquainted* with them. Let us visit them in their homes, that we may know whereof we speak; and then let us apply the remedy with the love of Christ Jesus in our hearts. Let us love *even our enemies* while we are full of energy and godly zeal in bringing them to justice, providing *nothing else* will turn them from the error of their ways.

HIGH-PRESSURE GARDENING.

BY A. I. ROOT.

FARMING DOESN'T PAY.

Of course, I can not undertake to go over all the reasons why farming doesn't pay at the present time; but some of them have come under my observation to such an extent that I want to speak of it. In running about the country on my wheel I am again and again forced to the conclusion that farmers, at least many of them, do not work as people do in factories or at mechanical trades. Of course, many mechanics get better prices than farmers do. If you employ a stone or brick mason he commences at 7 o'clock sharp in the morning, and works till 6 at night. He does not stop to gossip nor to tell stories—seldom to eat even an apple. He works hard, steadily, and busily, straight through the ten hours. For this service you pay him perhaps three or four dollars a day, and he ought to have it—that is, when you consider how much he has to stop on account of the weather, and how he puts in when the weather is favorable. You may say it is not right for everybody to work every day like that. Well, may be it is not; but if I were on a farm, and a mortgage were hanging over me, I think I would work just that way. Yes, I know some farmers *do* work that way, and some work hard even twelve or fourteen hours a day, and wear themselves out; but these are extremes. The great bulk and mass of farmers do nothing of the kind. A few days ago I was in a country town several miles from home, so late that it was not wise for me to think of going home on my wheel in the dark; so I stayed over night, intending to start out at the peep of dawn. But I was urged so hard to stay to breakfast that I concluded to do so. Now, this little town is a community of farmers. Almost every man in the town has a farm, more or less, back of his home. A good many of their farms are mortgaged, and there has been considerable talk at their farmers' institutes to the effect that farming does not pay. I do not think, however, that very many of them have got where they talk of repudiating their debts; but it seemed to me there were quite a good many who have not very much energy nor ambition in lifting the mortgages. I got up a little later than my usual time. As nobody was stirring I took my wheel and ran around the town some. The weather was beautiful, and, in fact, it was one of these beautiful October days we are just now having. The roads were hard and firm. Our own big team has been drawing two tons and a half of coal at a load, right along, because the roads are so nice and the weather so favorable. It was just the time for farmers to be out and moving as soon as they could see. Yes, if I were going to lift a mortgage (come to think of it, that is exactly what I *am* doing) I think I should have my breakfast long before the sun is up, and, under some circumstances, even before real broad daylight. Well, while I was waiting for people to get up I thought I would run around the town and look at the homes. How many people do you suppose I found moving as I went past say thirty or forty neat and tidy homes, little and big? I do not know just what the hour was, but it was between six and seven. I caught a glimpse of only two individuals—a woman and a boy. As I did not see any smoke coming out of the chimneys I concluded their getting-up time was generally about 7 o'clock. Some of them—I do not know how many—finished their breakfast about 8 o'clock. On another occasion I visited one of our country towns, starting after breakfast, rode 12 miles, and found the man I wanted to see, just getting up from the breakfast-table. Perhaps he has no mortgage to lift, so it is his own business. But in going about the country as I have been doing lately (and I think I never circulated among "our homes" and "our neighbors" in all my life as I have of late) it has seemed to me as if a great part of the farmers seemed to think it vacation time, or they are off at a summer resort; or that, during the month of October, *every* day is *Sunday*. No doubt farmers suffer many wrongs that ought to be righted; but I am sure it is also true that they do not put in as many hours of good steady hard work—or, at least, a great many of them—as do our masons, our carpenters, or those who work in factories where they are working for wages. This matter of stopping to talk and visit, and talking politics, is, I am sure, *often* carried to too great lengths. My conscience would trouble me if *I* were to do it. I believe in being sociable, and perhaps I need to cultivate this very virtue; but my conscience would trouble me, if my crops were suffering, if I should stop to visit when the weather is so favorable. May be these friends had no crops that were suffering; but I tell you the thrifty farmer *always* has work that is crowding when the weather is nice.

Let me give you just two pictures that have lately come under my eye. One day a train was obliged to stop on a side-track. I felt as if it were wicked to waste my time, so I strayed across the lots into a barnyard. The proprietor declared that farming didn't pay. I looked into a hen-roost near by, and the manure was piled up almost to the perches. There were great wagon-loads of poultry manure that had probably been there for years. I could *never* stand it to stay on a farm—I should be homesick and disgusted—if I were obliged to stay amid such surroundings as I saw that morning. I exhorted him somewhat about his poultry manure, but he had no heart nor energy for any thing—the business did not pay.

Now for picture second: Yesterday a man brought me a load of Hubbard squashes. They are scarce this year, and I told him I would give him 2 cts. a pound for some nice ones. I paid him $7.61 for what he had on his light spring buggy. Then he informed me that they grew on *four square rods* of ground - just *one-fortieth* of an acre. I asked him what fertilizer or manure he used. He said he did not use *any;* but I thought I saw a sort of twinkle in his eye. Then a neighbor let out the secret. He cleaned out an old poultry-house—no, no!—"chicken-roost" I mean—and he got so much manure he did not know what to do with it: so he spread it out on the four rods of ground. He worked it in after a fashion, and planted potatoes. The ground was too rich, and he did not get any crop. Last spring he plowed up the same ground very thoroughly, so as to get more dirt mingled in with the manure, and then planted potatoes *again*. Somebody told him if Hubbard squashes were planted among potatoes the bugs would not bother them. So he put a squash seed in every other hill of every other row of those potatoes. Sure enough, those bugs never touched those squashes. Do you know why? I do, if you do not: and I can imagine every bug going off holding its nose in disgust, because of that poultry manure, strong enough to sicken an ox, to say nothing about a tiny little bug. Did this manure come from the same roost I looked at? Well, perhaps not; but it was off in the same direction, and the moral is just the same, any way. I do not know how much the man got for the potatoes on that four rods of ground. I understood there was a good crop, and that the squashes did not hurt the potatoes a speck, and *vice versa*. Of *course*, they didn't. You can grow two crops on the same ground, without a *bit of trouble*, if there is food enough for both. I am not sure but that the shading from the hot sun was a *benefit* to both. Did you ever notice how things grow when they have got so large as to cover entirely and *shade* the ground? Well, here is an instance of two crops grown on the same ground. *One* of the crops yielded at the rate of *$304.40* per acre. Returns from the *other* have not yet come in. Is there not a little bit of daylight leaking through the clouds when we consider the facts brought out in the above little story?

You may ask why I am buying Hubbard squashes and paying 2 cts. a pound for them. Well, *I* have been backsliding. My creek-bottom land was under water so much I decided to put the squashes up by the windmill; and I put them on a piece of ground that I have owned for only a little over a year. It is underdrained, but it has not yet been manured up to the highest notch; so, instead of getting squashes by the ton, I got how many? One good big *wheelbarrow-load!* I thought once that I too would quit farming because it did not pay; but since it leaked out how that man raised his great crop of Hubbard squashes, I think I shall gather courage and *keep on farming*.

MARKET-GARDENING FOR NOVEMBER.

Even during this poor season we have occasional glimpses in the way of pleasant surprises. We are just now selling the finest Snowball cauliflower we ever raised. I think the seed was sown about the 1st of July. While heading up, the weather has been so cold that we have had no trouble from the green cabbage-worm, nor from insects of any sort. And another thing, we took pains to tie the leaves up in a bunch over the heads, just as they were heading out. The seed is exactly the same, namely, March's Snowball cauliflower, that gave us in the spring sprangly, sprawling heads, scarcely fit for any thing. They are now compact, nice, and more like a great snowball than any thing else. As we get from 10 to 15 cts. a pound for them, some of them bring 25 cents a head, and I guess there are 100 nice heads on four rows, each perhaps 50 feet long. We also had four rows of carrots, one foot apart, rows about 400 feet long. The wetness drowned them out so many times that there was not more than half a stand. Notwithstanding, we have about 30 bushels of carrots. Where the plants were not drowned out, they are so thick that they have crowded each other out of the ground; and in some places almost a peck of carrots would come out in a lump, some of them so large as to weigh five pounds. We have just sold 25 bushels at forty cents per bushel. At this rate the carrots would give us a crop worth about $400 an acre. The crop had very little work put on it after sowing the seed, and, indeed, was not even thinned out. I have been assured by good stock-growers that a bushel of carrots is worth, on an average, as much as oats for cows, horses, or almost any other farm stock. Almost every domestic animal is passionately fond of carrots. And this reminds me, that one day I went to carry a basketful of carrots through the pasture lot. The Jersey cow was determined to have them, and I was equally determined that she should not; and before we got done with each other we had quite a little "circus" there in the middle of the lot. She came out ahead, too, for she got quite a portion of my basketful, even if she did not get all of them. For several years we have had trouble in disposing of our surplus carrots, turnips, and mangels; but this year I thought I would try putting a notice in our county paper, and we have had purchasers for almost all of them, right from the field. Sometimes it *pays* to tell people what you have got a surplus of.

NOTES OF TRAVEL

FROM A. I. ROOT.

The parched ground shall become a pool, and the thirsty land springs of water. ISA. 35: 7.

MIRAGE; IRRIGATION; ANCIENT DWELLINGS IN ARIZONA, ETC.

Arizona, with all its grotesque features, has something more wonderful still in its mirages. Many people, however, have never seen these wonderful visions, if so I may term them, because they have not watched for them and been ready to see what is to be seen; in fact, we did not have a good treat in this line until just as we were leaving the Territory. We took the train at Tempe before daylight, and the sun was rising when we were a few miles away from Maricopa. I was on the lookout, and was rewarded by seeing first a magnificent suspension bridge in the clouds, just over the tops of the mountains. These bridges are perfectly level and straight, and I judge the mountain vapors have something to do with it, for they often seem to settle to a water level; and right along this level, a slender thread, as it were, seems to run from one mountain to another. Now, this might be easily explained were it not that this thread is frequently cut up by regular cross-beams, say like the ties on a railroad, only they are so wonderfully exact and evenly spaced that one would think it was a piece of the finest mechanical work. While you watch, the scene changes, and you are treated to a series of dissolving views. As we came into Maricopa, a wonderful mountain reared its top clear up amid the skies. By and by an arm shot out of the side of the mountain, something like the horn of an anvil. In fact, the whole mountain began to look like a huge blacksmith anvil. While we gazed, the horn began slowly to grow in length, and to stick out further and further into the sky. Pretty soon the point of it narrowed down to a sort of neck, and finally it broke off. Even though it did break off, however, it did not drop, but remained suspended in the air. Then a sort of loop-hole made its appearance in the middle of the anvil near where the horn started out; and this hole kept enlarging until you could see objects on the other side. While this was going on, a tall rock or spire was all at once discovered near the railroad track. It was as straight as some of the great chimneys in manufactories. As it was near the track, near the line we were soon to take, I congratulated myself that we could soon run up to it and see what it was like. I felt sure; there must be some sort of rock to give foundation to the illusion: but when a bystander told me there was no rock there at all, and that those wonderful ranges of mountains we had been admiring were not mountains at all, I could not believe his words. In fact, it seemed as if my senses were a good deal more reliable than his statements. The grotesque mountains, and this wonderful rock, were in plain sight for perhaps a couple of hours, although they changed form a good deal. Imagine my disgust, when we took the train and arrived at the point where the rock ought to be, to find nothing whatever—just the plain level surface of the desert. Sometimes a rock or mountain would be plainly visible while we were standing on one side of the railroad track, but just as plainly *invisible* when we stood on the other side; and this made me think that the iron track, so perfectly straight and true, running away into the distance, had something to do with that wonderful shaft of rock that seemed to shoot almost into the sky. The books tell us that this mirage is a reflection of something that exists somewhere else. Well, now, there is not any such great bridge anywhere in that region; and there is not a mountain that looks like a blacksmith's anvil; and why should these things grow and shape themselves? You may suggest that it was only a queer-shaped cloud or vapor; but this would not explain the cross-ties and other forms of architecture. It was quite evident that nature seemed to delight in sporting in a certain form of regularities. Things would be spaced off into distances so exactly equal that there was no "happening" about it. The reflection of the sands of the desert has something to do with it; and on the great prairies, along the Southern Pacific, through the whole South, I saw now and then long strips of horizon with a streak of either sky or water underneath. The great cornfields in Dakota sometimes produce a similar result. I suspect that these appearances are produced by the same phenomena, to a considerable extent, that show a ring around the sun and moon before a storm—the same thing that produces what we call "sundogs;" and these latter are sometimes accompanied by beautiful geometric circles, as you may have noticed. We have been told, however, that there is really no circle around the sun and moon at all—it is "all in your eye"—at least, so scientists tell us, just as a rainbow is "all in your eye," and that there is no rainbow at all across the heavens, and never was and never will be. Never mind. We enjoyed the mirages of Arizona fully as much as we ever enjoyed looking at a great city or great steamships or great fireworks; in fact, I think I enjoyed them a little more, because the mirage is the work of *nature*, and the other is the work of *man*.

Before leaving Arizona with its wonderful natural scenery I wish to mention a pleasant visit that my brother and I paid to A. J. King, for so many years editor of the *Bee-keepers' Magazine*. That magazine was, as you may know, conducted a great many years, had a large subscription list, and certainly came next to the *American Bee Journal* and GLEANINGS. Friend King is away off in the desert, almost alone by himself. One can not say there is no other dwelling-house in *sight*, for you can see a house thirty or forty miles on the deserts of Arizona, if you have a telescope equal to the need. On page 628, 1891, friend King gave us some enthusiastic reports of this strange country. Well, his anticipations have not all been realized, I believe; and just at the time of our visit an unusual frost had made his fruit-ranch look rather sad and dreary. His wife was away at the time, and he and his boy were living alone amid their fruit-trees and shrubbery. The boy was engaged in clipping off the tops of the small orange-trees where they had been frosted. Right close by his house are some specimens of giant cacti that make one stand and gaze in open-mouthed wonder. I guessed they were 20 or 25 feet high; but friend King said the tallest was over 40 feet; and when I asked about the rapidity of their growth, he said he thought they grew very slowly; for during the three or four years he had been on the place he had not been able to detect any growth at all.

Before I forget it I wish to tell something about the hot season of Arizona. Please remember it is almost as hot there nights as it is in the daytime; and there is so little dew that people sleep outdoors in the dooryard, without any sort of trouble from dampness. In fact, there are times when outdoors is about all the place where one can sleep. During this heated term there are no flies to bother cattle and horses; in fact, I believe they have very few flies or any thing of that sort at *any* season. It may be too hot for the flies, or may be they have not got introduced yet."[*]

I am now going to tell you a wonderful story. A man who was trading in my brother's drugstore brought in some eggs and set them down, and forgot to take them when he went out. They finally set the eggs back on a shelf, thinking the owner would be back for them sooner or later. Time passed, and the eggs were forgotten until somebody heard chickens peeping; and, sure enough, there they were, breaking their way out of the shells, without any help from incubator or mother hen; and yet, with exceedingly high prices for both poultry and eggs, nobody has ever yet utilized this wonderful opportunity for having a self-managing incubator. Just think of it—buy your eggs, spread them out and take care of the chickens when they hatch! Perhaps, however, the weather is not always as favorable as it happened to be at just that particular time. I am daily expecting to hear of some wonderful things from this queer Territory of Arizona. Yes, and there are some magnificent enterprises already under way. One of the firm of D. M. Ferry & Co., of Detroit, Mich., has already purchased some immense tracts of land in the neighborhood of Tempe, and they are constructing enormous irrigating-canals — yes, canals is the word, for some of them would run a canal-boat, without question. These irrigating-canals take the water from Salt River, through tracts of country as yet unused; and already they have demonstrated what may be done, by their success on little patches, in making the wilderness blossom as the rose. It is reported that Ferry is going to raise his seeds—at least a great part of them—in this wonderfully favorable climate. While we were there, an immense machine for excavating was being drawn by, I think, sixteen or eighteen horses. A suitable plow, attached to the great engine, turned a furrow directly on a moving platform. This platform was carried up on rollers until it dumped the dirt down on the side of the canal. The consequence was, the banks were just as round and even as a landscape gardener could make them. They kindly invited us to get up on the machine and go a "bout" with them. When I looked away in the distance, however, and asked them how far one of those "bouts" meant, and was informed that it was *two miles long*, I did not feel able to spare the time. To see work of this kind going on away out in the wilds of an uninhabited desert was to me not only wonderful, but most fascinating. It verifies the words of Holy Writ: "For in the wilderness shall waters break out, and streams in the desert. The parched ground shall become a pool, and the thirsty land springs of water."

All along this river, great enterprises of this kind are starting up; and the only limit, so far as I can see, will be when all the water shall be utilized. Even then, by means of dams, great reservoirs will be filled from the waters that run to waste in the winter time. Still further, where water runs through these desert sands, great quantities of it percolate through the soil and are lost. Cementing the sides and bottoms of these ditches, as they do at Riverside, Cal., will increase the amount of water for irrigating, very considerably.

Oh, yes! I must tell you about the ruins and the broken pottery. Every little while on these desert places we meet with mounds, or sandbanks. Where this sand is scooped away, ancient dwellings are disclosed; and the ground all about these dwellings, and, in fact, all through this mound, is thickly strewn with broken pottery—not only plain pottery, but fragments of painted and decorated ware. These fragments are oftentimes so plentiful that they almost seem to cover the ground. It is like tramping around the pottery-shops here in the East. The decorations seem to run in a particular line of ornamentation, indicating that the people were a great deal alike, or had the same habits and fashions. Implements for grinding their corn are also found. In fact, Arizona is full of curiosities to make glad the heart of the archæologist. One commences, when he first sees these things, to load himself down with specimens. Finally, when he discovers they are everywhere, he loses interest and enthusiasm. It has been thought, I believe, that these relics were left by the mound-builders; but when we discover that the present inhabitants—that is, the Indians—still grind their grain with utensils very similar, and ornament and paint their pottery in a manner quite like these broken fragments, the conclusion forces itself upon our minds that these very Indians may have done this work thousands of years ago. They certainly used Salt River for irrigating, much as we do now, for great irrigating-canals are found almost everywhere. In fact, one company utilized one of these ancient water-courses to an extent that saved them several thousand dollars; and I am told that, even up on the mesas on the mountains there are remains of irrigating-ditches showing that the Indians must have had a system of canals that carry the water to points that would seriously trouble our best modern hydraulic engineers. How did the sand get over these ancient dwellings? Well, it has been suggested that it is the work of the wind. Any sort of obstruction in the desert, even a bush, catches the sand, and it piles up around it; and as ages pass, it is not strange that considerable hills are piled up in just the way that snow frequently piles up into immense snowbanks, where it lies on the ground and accumulates for a long time.

Orange-growing in Arizona is, in my opinion, as yet hardly settled. Last season a carload or two of the finest oranges that perhaps ever grew anywhere were put on the market, and they claim they can produce them several weeks earlier than in California. Since then, however, a severe frost has made considerable havoc with the same trees that bore this nice fruit. Perhaps some of our Arizona readers in the vicinity of Phœnix and Tempe will tell me how the trees "panned out" since the time of which I speak.

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[*] Since the above was written, our stenographer, W. P. Root, suggests: "The larvæ of flies and similar insects can not develop in a climate so destitute of moisture as is that of Arizona. The complete desiccation of meat that occurs when exposed in such arid climates as that of Arizona and parts of Palestine is well illustrated in the case of Samson, who found the carcass of a lion which he had lately slain, and it was so dry that the bees had filled it with comb. This shows that the flesh was odorless and hard, and hence not moist enough to furnish larvæ the means of subsistence, which, as in the case of all forms of life in their first stages, consists almost entirely of liquid food. It might be suggested, then, that the bees made a mistake in building in such a place if their larvæ could not develop; but it must be remembered that the bees can and do supply the necessary moisture to *their* larvæ, while *flies* pay no attention to theirs after the egg is laid."

TOBACCO COLUMN.

CONDITIONS UNDER WHICH WE GIVE SMOKERS TO PERSONS WHO STOP USING TOBACCO.

First, the candidate must be one of those who have given up tobacco in consequence of what he has seen and read in this department. Second, he promises to pay for the smoker should he ever resume the use of tobacco in any form, after receiving the smoker. Third, he must be a subscriber to GLEANINGS. Any subscriber may, however, have smokers sent to neighbors or personal acquaintances whom he has labored with on the matter of tobacco-using, providing he give us his pledge that, if the one who receives the smoker ever uses tobacco again, he (the subscriber) will pay for the smoker. The one who receives the smoker in this case need not be a subscriber to GLEANINGS, though we greatly prefer that he be one, because we think he would be strengthened by reading the testimonials from time to time in regard to this matter. The full name and address of every one who makes the promise must be furnished for publication.

Send a smoker to Samuel Roach. If he uses tobacco again he will pay for the smoker. His address is Amity, Pa. H. W. VANKIRK.
Washington, Pa.

Having been a subscriber to GLEANINGS, and being induced to give up the use of tobacco thereby, I now claim a smoker. If I ever use the weed again I will pay for the smoker.
A. H. COOPER.
Tanners, Gilmer Co., W. Va., June 27.

My son, C. H. Otis, who has smoked and chewed for ten years, has agreed to quit for good if you will send him a smoker. I will pay for it if he ever commences again. I. OTIS.
Dunlap, Har. Co., Ia., June 7.

My boy Pearl has been using tobacco for the last two years, but has agreed to quit off if you will send him a smoker. If he begins again I will pay for it. R. G. MASON.
Duncan's Falls, O., July 13.

Please send a smoker to Thomas Gore, Cassville, Ga., for a tobacco pledge. If I ever know him to use tobacco again I will pay you for the smoker. R. W. J. STEWART.
Bowls, Gordon Co., Ga., July 24.

You will please send me a smoker, as I can conscientiously say that it was from reading your journal that I was influenced to make the resolve to give up the use of tobacco. I promise that, should I ever use the weed again, I will pay you for the smoker. J. W. BOASE.
Rising Star, Texas, June 21.

I quit tobacco last May, and I think I am entitled to a smoker if any one ever was, because it is through you that I quit. May you live to give smokers to thousands more is my wish. If I ever use the weed again I will pay for two smokers. R. F. HETRICK.
Ceresco, Neb., Sept. 12.

Walter and Joe Green, sons of my neighbor, say they will quit tobacco for a smoker each. If they get them they understand the conditions. I have been watching for something to grow out of this tobacco business in these parts, and here are the first-fruits. It seems to me that this expensive and filthy tobacco habit will some time in the future be considered unfit for our good Christian people. W. H. EMBRY.
Water Valley, Miss., July 26.

I have a man working for me, and he has taken to bees like a duck to water; and as he has been reading your journal considerably, and I too have explained the Tobacco Column to him, I have got him in the notion of giving up the habit of using tobacco; and I am sure he would appreciate a smoker if you would send him one, and I promise to pay for it if he ever uses tobacco any more—that is, so long as he is under my jurisdiction. He has four fine colonies of bees, and he takes great pride in them. His name is John S. Peters. T. V. JESSUP.
Greeley, Col., July 8, 1892.

Find inclosed an order. Two of the smokers are for parties who have given up the use of tobacco. I will vouch for them, and will watch them closely; and if they ever use it again I will pay for the smokers. The names of the parties are Alex. P. Callen and Barek E. Turner, both of this place. M. M. CALLEN.
Moravia, Ia., June 25, 1892.

I have a grandson who assists me in the bee-business. He had become an inveterate tobacco-worm, and I insisted on his quitting off entirely. The other day he said he had quit tobacco—had not used any for a month, and he had determined to stay quit. He says he wants me to write to you to send him a smoker upon your usual terms. If you send it I will vouch for him, and pay for it if he breaks his promise. His name is M. H. Sims. F. M. ALLEN.
Renfroe, Ala., July 9, 1892.

A neighbor of mine, Milo Hiler, called at my place the other day to see if I had a second-hand smoker to sell. Knowing he was in the habit of using tobacco I put your proposition to him. In reply he said that, three days before, he had given his heart to God, in a revival meeting, and that the next morning in his own home he prayed to God to remove his tobacco appetite, which he has done. As he had taken the pledge before I spoke to him, I told him I did not know whether he was entitled to one, but that I would write and tell you the circumstances; and should he be entitled to one under your offer he will pay for the same should he resume the habit. E. S. DART.
Sparta, Mich., July 26, 1892.

[To be sure, he is entitled to a smoker, friend D. Judging from my own experience, I think it quite likely the temptation to use tobacco will come back again—not that the grace of God will ever diminish, but that friend Hiler may, as time passes, now and then forget his sacred pledge. The smoker may possibly prove to be an object-lesson and a reminder.]

I see your Tobacco Column is getting to have many names in it. I had a party here the other day to whom I sold five Dovetailed hives. They were burned up at the station. I had quit using tobacco myself, and I told him that tobacco was hurting him. He had sour stomach about all the time, and a doctor giving him medicine that did him no good. I told him to let the tobacco alone, and then he would be all right; so when he came the other day for more hives he said he was much better, and not troubled much with sour stomach. I told him your terms about a smoker, and he said he would pay for it if he ever used tobacco again: and if he doesn't do so I will. His name is Samuel Roach. H. W. VANKIRK.
Washington, Pa., April 9.

As I am an invalid, and have been for years, I am obliged to employ help in my apiary. I have had a boy to help me for two or three years past. He is 16 years old now. He has been using tobacco for some time past. I told him of the Tobacco Column, and told him if he would quit the use of the filthy weed you would send him a smoker. He then wished to see the Tobacco Column. After reading the conditions under which he could get the smoker he promises me that he will agree to all the conditions therein stated. Should he commence it again I will pay for the smoker. His name is Wesley Rhinehart. F. S. THORINGTON.

Chillicothe, Mo., July 29, 1892.

Friend Root: I herewith inclose a clipping from the Fort Smith *Daily Times* of July 3. I thought you would perhaps like it for your Tobacco Column:

CHARLEY WALLACE DEAD.

Yesterday morning Charley Wallace, son of Mike Wallace, breathed his last at his father's residence on Twelfth St. His illness was long and painful, and was caused by the excessive use of cigarettes. He was a bright boy, and gave promise of making a fine man, as he had many fine traits of character; but he became addicted to the use of the deadly cigarette. His father and mother were constantly in attendance at his bedside during his long illness, and all that medical skill could do was done to alleviate his sufferings.

Mike Wallace, the boy's father, is one of our most prosperous business men, and his many friends sympathize with him and his wife in their bereavement. We have a law in this State which prohibits the sale of cigarettes to any one under 16 years of age; but we have some men among us who care very little for the law so long as there is a dime in sight. The man who had been selling Charley the cigarettes was arrested, and fined $10 for his offense, which I deem a light penalty for what is but little better than murder. Z. WELLS.

Fort Smith, Ark., July 4.

GLEANINGS BEE CULTURE

A Journal devoted to Bees and Honey and Home Interests.

Illustrated Semi-Monthly

36 Pages 7×10

$1.00 Per Year

For our light affliction, which is but for a moment, worketh for us a far more exceeding weight of glory. II. COR. 4:17.

THIS is a great year for honey *due* but not received.

SOME one is doing some very excellent editoial work in the *Canadian Bee Journal*. Some of it, at least, sounds like Jones the bee-man.

THE editor of the *Nebraska Bee-keeper* says he has attended one State and three county fairs this fall, and at none of them has he heard a good word spoken for the Punic bees.

THE old exploded sting-trowel theory — bees capping over honey with their stings as trowels, and injecting bee-sting poison into the cells — is now going, or, rather, trying to go, the rounds of the press again.

AS will be seen in another column, the British bee-keepers have definitely arranged for an exhibit of British honey at the World's Fair. We may rest assured that our English cousins will make a fine exhibit. In their own country they excel us in honey and bee-shows.

WE are getting reports now, that a solution of salt water fed to the bees in syrup, or sprayed direct on the combs, does not cure bad cases of bee-paralysis (nameless bee-disease). As the disease sometimes goes off itself, it may be questioned whether it does any good, even in *mild* cases. How is it, friends?

WE have just received from the W. T. Falconer Co. samples of their new Falcon sections. In our judgment they are the nicest of any thing heretofore put upon the market by any maker. Our new section-machinery will be done in a few weeks, at which time we hope to make a product fully their equal. To make any thing better would be impossible.

WE regret to announce that the health of Mr. J. Huckle, business manager of the *British Bee Journal*, has been such that he has been obliged to give up his work. Our business relations with Mr. Huckle have been very pleasant, and we hope that a rest will restore him to health. The business hitherto done at King's Langley will be transferred to 17 King William St., Strand, W. C., London, where all communications for the *B. B. J.* should be addressed.

THE October *Review* contains a couple of excellent half-tones showing the exhibits of Hunt and Hutchinson, reference to which was made in our editorial on page 710, for Sept. 15. Both these exhibits were unique in their way, and we had intended to "do 'em up" in half tones, but the daylight photos were too poor to be worked up satisfactorily. Bro. Hutchinson succeeded in giving some good pictures from flash-light photos which we judge were taken later.

WE regret to announce that the office of the *Progressive Bee-keeper*, of Unionville, Mo., was destroyed by fire last month. Bro. Quigley lost the back numbers of his journal, including books, papers, and other stock. Although there was no insurance, and the loss a severe one, the *Progressive Bee-keeper* will be issued just the same, the subscription-book having been saved. By the way, there are too many bee-keepers and supply-dealers who go without insurance. At the low rates usually secured, no one should think of going without protection.

QUITE a number of our friends (well meaning, of course) take the liberty, without orders or first writing, of sending us queens that they have after uniting. Along with the queens comes a card asking us to credit on account what we can. It seems like a hard thing to do, but we are obliged to send the queens right back by the next mail, as we have no use for them. We, like all the rest in the North, are uniting, and, of course, have a surplus of queens on hand of our own raising. Our stocks, as we advertise, are bred from selected mothers, either in our own yards or in the yards of our regular queen-breeders in the South. It would not be fair nor right for us to accept queens from everybody, and send them out to our customers. The *stock* might be just as good, but we have no assurance or guarantee of it.

HARD ON PUNICS.

WE extract the following from the *Canadian Bee Journal* for October 15:

> The Punics are the biggest fraud ever put on the bee-keeping world. I got one twelve months ago to see if it would improve the yield of an out-apiary I am operating. She turned out fertile, and the fifty colonies in that yard are mostly pure Punics (those that are left, I mean), having killed and replaced a number. The Punics sting worse, and the sting is more painful. The queen is more difficult to find, and they prefer to fill the brood-chamber with honey rather than store above. I advertised them in the spring, and, judging from the letters I had, I could have sold hundreds, if I had not given my customers my opinion of them.
>
> Avery, La. H. FITZ HART.

Some of our friends will remember that we were severely scored because we told some hard things about the Punics. The above from the *Canadian Bee Journal* looks as if we told some straight facts, and thus saved some of the friends from investing early in the season in some very undesirable bees.

THE COUNTRY GENTLEMAN.

I HAVE many times of late felt like expressing my gratitude and appreciation to the agricultural journals of our land. I do not feel like saying that any one of them is the best agricultural paper published, for it would be a good deal like comparing my friends and relatives. Some excel in one thing and some in another. I have often felt like saying, however, that there is something about the *Country Gentleman* that renders it specially valuable to me. I have often wondered who it is that keeps such a steady, keen eye on every thing that goes into its columns; and I have finally concluded that it must be some old veteran in agriculture—somebody who knows what has been done, and what is likely to succeed and likely to fail—some one who is fully *competent* to put on the brakes when a lot of us are inclined to start off in error. Another thing, there is a sort of dignified gentility about this periodical that makes one think it is rightly named. It *costs* a little more than some other papers; and, by the way, it *usually* costs something to move in the best society, and to have for your companions learned and intelligent men. Sometimes I have thought that this veteran who answers so well and so wisely almost any question that may be asked pertaining to agriculture, was a little conservative; but it is a pretty good fault, after all; and I am real glad that, among all our various periodicals of this sort, we have at least *one Country Gentleman*.

MATING CHOICE QUEENS TO CHOICE DRONES ON HANLON'S ISLAND.

A SHORT time ago a firm in Canada advertised that their queens were mated to hand-picked drones on Hanlon's Island. A resident of Toronto (he has moved away now) wrote us shortly after, that there were no bees on Hanlon's Island, and that the mating of queens there was all a myth. We promptly wrote to the parties in question, for an explanation. They assured us that it was a fact, and referred us to the names of several parties as proof — among them Mr. John McArthur, 881 Yonge St., Toronto, who bred the queens for them.

It seems Mr. M. has had in mind the mating of choice queens to choice drones on this island for ten years or so back; but until 1889 it was so barren that bees could not be supported there except at an expense. At that time the city of Toronto spent over a hundred thousand dollars in beautifying and improving the island; and it is now stated that it blossoms like the rose, and will support a large apiary. Mr. McArthur took advantage of the situation and put upon the island some choice stocks, and has been experimenting for three years back with the matter of mating queens to drones of his own choosing.

The island itself is two miles from the city, by a bee-line, while the bees that have been used for experimental purposes were a mile and a half further, on the other side of the island—quite a safe distance for mating. Mr. M. proposes to raise queens there the coming season; and as it is a great pleasure-resort, ferry-boats go back and forth every thirty minutes, and hence orders for queens can receive prompt attention. This may seem like a little free advertising; but when a bee-keeper has enterprise enough to take advantage of a good thing we feel like encouraging him; for it would indeed be very desirable, and a great boon to bee-keepers at large, if we could take drones, say from Mr. Doolittle, and choice queens from Mr. Manum's honey strain, and have them crossed. In speaking of this we do not forget D. A. Jones' experiments in the same direction on some islands in Georgian Bay. The islands being barren of nectar-bearing blossoms, the enterprise was abandoned on account of the expense.

The great trouble all along in queen-rearing has been the inability on the part of bee-keepers to perfectly isolate and so perpetuate certain desirable characteristics in certain bees; and it is only those who have easy access to an island who can do so with reasonable certainty of success. Say, Dr. Mason, what is the matter with your appropriating a small island off from Toledo, and running a rival establishment to the Canadian enterprise? You know you like to "give it to the Canucks."

CASTLES IN THE AIR; BLUNDERS OF A BEGINNER; OUT-APIARY IDEA CARRIED TO EXTREMES, ETC.

A CASE has recently come to our knowledge where a beginner bought an out-yard, with little or no previous experience with bees, containing 100 colonies. As to whether they are paid for yet we can not say. With these he had high anticipations, and proposed to secure, the first year, fifteen thousand pounds of honey. The bees were hybrids; and in order to improve his stock and get more honey he ventured to Italianize them at once—a doubtful venture, so far as the honey was concerned, and, so far as the bees were concerned, when they could least afford it. Without counting the cost of advertising space, he ordered several insertions of a two-inch advertisement. Now, hybrid queens do not usually sell for more than 30 or 40 cents. He continued to advertise until he had paid out as many dollars as he could possibly get for his queens. His next step, so we are informed, was to divide his 100 colonies into yards of 20 stocks each, these yards being anywhere from four to eight miles apart. His locality was sufficient to have supported almost 100 alone, to say nothing of going to the expense of dividing them up into four or five apiaries, and traveling miles to get to them, besides carting stuff back and forth. Did he secure his fifteen thousand pounds of honey? Not quite. As nearly as we can ascertain, he obtained less than one thousand pounds. The probabilities are, that his honey cost him a great deal more than he will get for it in the markets; and as to the hybrid queens sold, his net profit was nothing—yes, worse than nothing—and winter is staring him in the face.

You may say a man is a fool to go into bee-keeping in such a mad sort of way. We fear there are some who do something nearly as bad. They are crazed over the out-apiary idea, big crops of honey, big prices, and go to moving their bees away from home when they had better keep them all in one yard, even though they do not do quite as well. One year's experience is usually sufficient to drive them out of the business entirely. No one should think of establishing out-apiaries until his home apiary has got at least beyond 75 colonies; and even with 200 he had better not have more than two or at least three out-yards; but a great deal depends upon the locality. Some places—in Cuba, for instance—will support 500, and others less than 50.

Let us rehearse briefly the mistakes, some of which many make: In the first place, in the case mentioned, our beginner bought too heavily; second, he requeened his apiary when they could the least afford it; third, he failed to consider that the price of his product was too low to warrant much expense in advertising; fourth, he ought to have kept his bees in his home yard instead of scattering them into out-yards. Lastly, his great castle in the air obscured sober, intelligent judgment.

WHAT A PUDDING

That quaint old expression of our forefathers is so apt. We think of it daily when we look back ten years and recall how Victor Bicycles have outstripped all rivals.

What a pudding we have in the Victor Cushion and Pneumatic Tires, Victor Spring Fork, and the like.

No wonder Victors lead!

Let us send you a catalog.

OVERMAN WHEEL CO.,
SPRINGFIELD BRANCH: 128 Worthington St.

DAVIS, HUNT & CO., Agts.,
Cleveland, Ohio.

B. HENDRICKSON, Local Agt.,
Medina, Ohio.

IF YOU WANT BEES

That will just "roll" in the honey, try **Moore's Strain of Italians**, the result of 13 years' careful breeding. Reduced prices: Warranted queens, 80c each; 3 for $2.00. Safe arrival and satisfaction guaranteed. Those who have never dealt with me I refer to A. I. Root, who has purchased of me, during past 12 years, 582 queens. Circulars free.

J. P. MOORE, Morgan, Pendleton, Co., Ky.
13tfdb Money-order office, Falmouth, Ky.

Please mention this paper.

NEW YORK CORRESPONDENCE SCHOOL OF LAW

FOR HOME STUDY
243 BROADWAY N.Y.
INTRODUCTORY LECTURE FREE

Please mention this paper.

BUFFALO, N. Y. Unsurpassed Honey Market.
BATTERSON & CO. Responsible, Reliable,
Commission Merchants. 18tfdb **and Prompt.**

BEE-HIVES, SECTIONS, ETC.

We make the best goods and sell them cheap.

Our Sections are far the best on the market.

Our Works turn out the most goods of any factory in the world.

Our goods are known as the best throughout the United States and Europe.

Write for free, illustrated catalogue and price list.

G. B. LEWIS CO., WATERTOWN, WIS.

Please mention this paper.

Bee-Keepers' ❋ Supplies.

We are prepared to furnish bee-keepers with supplies promptly and at lowest rates. Estimates gladly furnished, and correspondence solicited. Our goods are all first-class in quality and workmanship. *Catalogue sent free.* Reference, First National Bank, Sterling, Ill. Address 1-24db

WM. McCUNE & CO.,
Sterling, Illinois.

☞ In responding to this advertisement mention GLEANINGS

JENNIE ATCHLEY'S HOME

will be at Beeville, Bee County, Tex., in 1893, ready with queens again. 19tfdb

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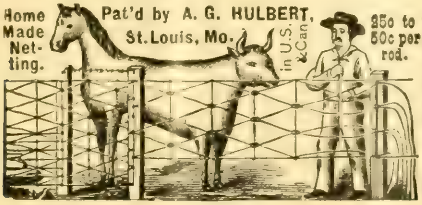

Home Made Net-ting.
Pat'd by A. G. HULBERT, St. Louis, Mo.
in U.S. & Can
25c to 50c per rod.

SAFE, DURABLE FENCE; ONLY $80 PER MILE.

LAND-OWNERS *save one-half the cost avoid dangerous barbs*

Agents *make $200.00 per month and expenses* **Cash**

The best local and travelling agents wanted everywhere. Write at once for circulars and choice territory; address **A. G. Hulbert**, Patentee, care of

Hulbert Fence & Wire Co. Manufacturers. **904 OLIVE STREET, St. Louis, Mo.**

Factory Catalogue with 200 engraved designs and prices, sent free to any who want fancy iron and wire work or city, cemetery and farm fences, etc.

SPECIAL NOTICES.

Remember only a month remains before the early-order discount drops from 5 to 4 per cent. Get your orders in early and secure the largest per cent off.

Until further notice we will pay 5 cts. each for GLEANINGS for May 1, 1890. Also for the Dec. 1 No., 1886. Remember, don't make a mistake in the number or year.

DAMAGED QUINBY'S NEW BEE-KEEPING.

The 50-ct. class of these books mentioned in last number were all gone in a few days, and several orders had to be filled with the 85-ct. class. We still have a few of these left at 85 cts., postpaid, or 75 cts. with other goods. Have sold some of the Abbott lithograph labels, slightly damaged, at $1.00 per 1000, and still have a good supply of these, as well as the perfect ones at $1.50.

HONEY MARKET—COMB AND EXTRACTED.

As we go to press, our car of comb honey has just reached us from Nevada. There are 1142 24-lb. cases in the car. From our notice of the honey two weeks ago we already have considerable of it engaged. The prices we made are low and compare favorably with the general market reports. They are:

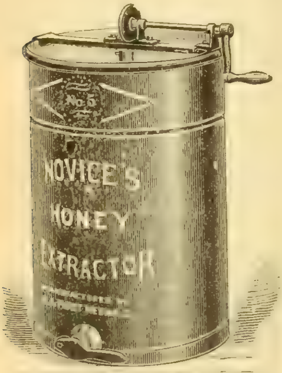
In lots of 1, 2, or 3 cases, 18c per lb.
In lots of 4 to 8 cases, 17½c per lb.
In full crates of 9 cases each, 17c per lb.
5 full crates, or 45 cases, 16½c per lb.

Since we have been receiving and shipping comb honey put up to ship by freight, several cases packed in a crate, with handles, we have not lost a pound by breakage, and we don't remember to have had any damage reported from customers to whom we have shipped, while we used to be bothered a good deal by breakage. We mention this that none may be deterred from ordering because of fear of breakage in shipping. Single cases by express are very often broken; but crates of several cases by freight, rarely if ever.

We have had very little response to our request in last issue for offers of extracted honey, and what we have received show that there is a scarcity of choice extracted honey, and it is commanding a good price. Many of the samples submitted are rather inferior in quality. We have secured some of as fine honey as we ever saw. It comes from the northeast corner of New York State. We are obliged to ask for it 10 cts. a lb., in 60-lb. cans, two cans in a case. It is so nice that, with the present condition of the market, it is well worth the price. It is light-colored, very heavy in body, of a fine flavor, and almost pure clover. If ordered at once, we can supply a limited quantity of it f. o. b. at Massena Springs, N. Y., at 9½ cts. per lb.

IMPROVEMENTS IN EXTRACTORS.

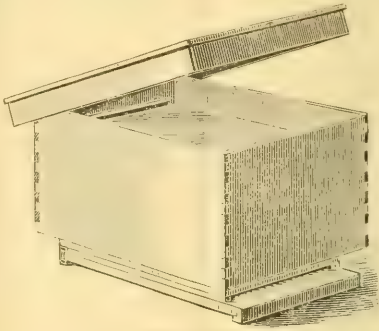
While we have made great improvements in hives, the old original Novice honey-extractor, as well as the Cowan, has received its share of attention. No changes or improvements have been made except those that have been suggested by practical extracted-honey men and practical mechanics. There seems to be a general preference for a bevel gear, with crank at the side of the can. Besides that, it seems to be necessary, on account of breakages, to make the arm reach clear across the can. All our extractors for 1893 will be made with the new gear. Parts of the old gearing will be kept in stock, to make repairs for extractors already in use. Besides the gearing, we have made substantial improvements in the way of honey-gates, and in the bottom of the can itself, all of which will be thoroughly appreciated by the practical bee-keeper. Although great improvements have been made, the prices will remain the same. See our catalogue.



NEW NOVICE EXTRACTOR.

OUR NEW OUTSIDE WINTER-CASE.

The reports of this year and our own experiments last winter justified us in the belief that a sealed cover for outdoor wintering, with packing material above and around the brood-nest, was the correct method. In accordance with this idea we modified our winter-case for Dovetailed hive by giving it a telescope cover (see cut). This permits of using the old cover on the hive without disturbing the sealing and at the same time affords better access for pouring your packing material around and on top of the hive. The bottom inside edge of the case is stopped up with padded sticks as before, so that the space between the hive and the case is closed up. We do not think it necessary to go to the extra expense of an extra bottom for the winter-case. It is not the bottom that is to be kept warm, but the top, and that should be sealed and protected. Our extensive experiments last season prove this.

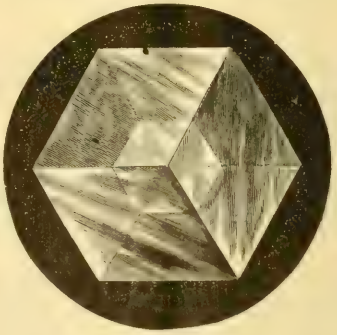


OUR NEW WINTER-CASE.

PRICES FOR 8-FRAME DOVETAILED HIVE.

New dovetailed winter case, including cover and padded sticks, 50c each; 10 for $4 50; or 100 for $40.00. Winter case, nailed and painted, 75c each; 10 for $6.50. For those who want winter-cases for their Simplicity 10-frame Dovetailed hives, the price will be 10c each more than above prices.

DODECAHEDRON PAPER-WEIGHTS.



Two years ago we made a special importation from Germany of 1000 of the beautiful glass paper-weights of which the above is a very poor representation. Nothing would be more appropriate for a bee-keeper, as it illustrates the mathematics of the honey-cell to perfection. It is such a beauty that anybody will be pleased and delighted with it. No matter which way you turn it, you will be charmed by new beauties. The above cut gives the actual size. When we found it in Chicago it was retailing at 50 cents; but buying 1000 of them we got them at a figure that enables us to sell them at 20 cents each, or 6 for $1.00; one dozen for $1.80. By mail, 3 cts. extra on one; 12 cts. extra on 6, or 20 cts. extra per dozen for postage, and packing to prevent injury. We will send one free postpaid for a new subscription to GLEANINGS with $1.00; or for a new subscription, with your own renewal, with $2.00, and 5 cts. for postage, we will send two; or, if you prefer, we will send one and a copy of any of the following books, you paying postage (5 cts.): Merrybanks and His Neighbor; Stepping Heavenward; Christian's Secret of a Happy Life, paper; Robinson Crusoe, paper; or any of the following, and we will pay postage: Revised New Testament; Ten-cent Dictionary; Child's One syllable Primer.

KIND WORDS FROM OUR CUSTOMERS.

"HIGH-PRESSURE" GARDENING, AND NO MISTAKE.

The following is put in this department because it came too late to go anywhere else:

Friend Root: I notice in last GLEANINGS that you speak of the new celery culture. Well, we have tried it, not on a large scale, but sufficiently so to warrant us (that is, me and family) in making a special effort the coming season in that direction, that our finances may be increased somewhat. We think we can get ten or twelve dollars per rod out of it very easily, with just a single crop, while two crops *can* be grown. Yes, it requires plenty of manure and water. The manure can be put on, but how to water these beds is the question. We think we can water on a small scale quite satisfactorily; but on a large area it is what will "get" gardeners. No doubt some way will be devised as we progress in *new* culture of garden products. Some plan shows itself when it is needed.

THE NEW ONION CULTURE.

This suits us pretty well after trying it two seasons. I will enlarge a little on it as we learn. We have grown onions weighing a pound and even a pound and a quarter, and have done it quite easily too. We are just finding out that it is not the great amount of land plowed or seed sown that gives good returns. It is that which is well taken care of that fills the market-wagon and brings in the cash. Can any one tell why it takes a man a lifetime to learn a few simple things? C. H. WELCH.

Krumroy, Summit Co., O., Oct. 24.

SELLING GARDEN PRODUCTS FOR GOOD PRICES.

Mr. A. I. Root: Some of the readers seem to have become excited about the exorbitant prices that you have charged for onions; and as it involves principles of morals and finance it seems to us worth discussing. But we don't think the true solution of the matter has been reached. A person who possesses advantages not attainable by others is in the position of a monopolist, and should not push his advantages to such an extent as to be oppressive to those who have been less fortunate. F. H. Finch seems to have been in such a position on that Dakota farm, and he acted in a very honorable manner; but "circumstances alter cases." If I understand it, A. I. Root had no such monopoly of location or soil, but merely did what any other person could have done. But they all chose to do something else, or to do nothing, even at the risk of not getting any onions at any price. In that case they can not complain at being charged all the onions were worth. If everybody had neglected to plant onions they could not have been obtained at *any* price. The advantages, therefore, that A. I. Root obtained were the result of industry; and to refuse to take the highest price they would bring would be to deprive labor of its just reward. It is all well enough for a person who chooses, to raise things and partly *give* them away; but it is a detriment to those who may wish to engage in the same business for a living. Besides this, *giving* labor to others may encourage idleness. If anybody *wants* to give away any thing, let him give to the *poor* and the *unfortunate* who can not help themselves, and not to those who *can*. HORACE COCHRAN.

McLean, O., Oct. 12.

A KIND WORD INDEED.

Brother Root:—Although we are strangers in flesh, yet I feel that we are united spiritually. I got acquainted with you through GLEANINGS. My father took it when I was a girl, and has continued to take it for years. I enjoyed reading Our Homes, and received much information and benefit from them. One piece that particularly taught me an important lesson was one that had a sentence in which I read something like this: "Girls should not say or do any thing that they would not like their mother to know, or boys their father." That sentence so impressed my mind I was led to practice it, and, I can say, with grand success too. In keeping company I never forgot this; and while this was such a good rule for me, I think it worth commending to others. I would that all young folks would try this rule—make a confidant of their mother; tell all of their affairs to her, and ask her advice as I did. Well, I am married now, and have two nice children. I made a visit to my parents this spring; and while at home I again had the pleasure of enjoying a very refreshing piece from GLEANINGS. The text was, "If any of you lack wisdom, let him ask of God, who giveth to all men liberally, and upbraideth not; and it shall be given him." This piece was liked by several. Pa said that he had read it several times. I brought the book home with me; and Sunday evening, when we were enjoying the presence of a few friends and relatives, that piece was read and very much appreciated. So, Bro. Root, I extend many thanks to you for those articles and others. I would say, go on in the work that God has called you to do. It can't be told just all the good that you have done. "Cast thy bread upon the waters, for thou shalt find it after many days." The Lord reward you according as you have been faithful, and abundantly bless you.

Carrollton, Ill., June 30. MATTIE B. MEEK.

THE DOVE-TALED HIVE.

A HOOSIER POEM.

You may talk about the progress made
in movable-frame hives;
Of menny things accomplished we have
worked at all our lives;
Frum the log-gum in the orcherd
to the chaff hive on the lawn,
Of the patent fancy fixtures that wuz
failures, dead and gone;
Of the freaks and foolish noshens
never hearn tell of afore,
And the menny new departures
in the apperculture lore;
But thare's *one* thing, I'm a-thinkin',
that's ferever bound to be—
That's the dove-taled hive, my reeders,
and hit's good anuff fer me!

Sum prefurs to use the Langstruth,
sum the Adare and Queenbee;
Sum hit is that hev the Headon;
others, Rute's Simplexity;
And thare's others that's a-gittin'
little "crosswize" frum the rest,
In a different "frame" set up a klaim
fer holdin' of the best;
Menny fellers take the Long Ideer,
and run hit all alone;
Sum ain't sattersfied with enny—
'cept a patent of their own!
And I've hearn tell of *sum* fossils
holed up in a holler tree—
But the dove-taled hive, my reeders!
Hit is good anuff fer me!

Oh the dove-taled hive's so handy,
hit's so cheep and easy made
That hit lays the hull gee-possy
of the others in the shade!
And I know thare ain't no pictur
that's so pleasin' to the eye,
Than to see hit chucked clean full of
honey, filled up three stories high;
And the yaller, hummin' 'Talyens,
with their bodies podded out,
With the necktar frum the clover,
jest a-buzzin' all about—
Geemses rivers, but the likens
is a purty sight to see!
Fer the dove-taled hive, my reeders,
hit is good anuff fer me!

Alexandria, Ind. EVAN ELLERY EDWARDS.

5 Per Cent Discount On All Goods

Listed from pages 10 to 30 of our price list, which are ordered between now and Dec. 1st, for next season's use. This does not apply to goods on other pages, except those mentioned. **A special reduction of 20 cents on each two-story chaff hive,** ordered for a limited time. The quantity and early-order discounts to apply also. Special prices quoted on sections in lots of 2000 and upward. Name the quantity and size when you write. We guarantee as good a quality for the price as you can obtain anywhere. Dealers should not fail to write us before making contracts for another season's supply. We offer special inducements.

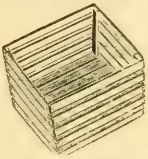
A. I. ROOT, Medina, Ohio.

DOVETAILED HIVES, SIMPLICITY HIVES,

SECTIONS, EXTRACTORS, ETC.
A FULL LINE OF
BEE-KEEPERS' SUPPLIES.
60-PAGE CATALOGUE. 1tfdb

J. M. JENKINS, WETUMPKA, ALABAMA.

☞In responding to this advertisement mention GLEANINGS.



Bushel Boxes.

We make and sell them DIRT CHEAP, because they are made of the refuse pieces from section blocks—pieces that are good and sound, but are slightly discolored. **PRICE, CRATE OF 15 (13 IN THE FLAT AND 2 NAILED UP), $1.50; 10 CRATES OF 15 EACH, 5 PER CENT OFF.** These Bushel Boxes save time in loading and unloading, and bin room in the cellar. Send for pamphlet on "**HANDLING FARM PRODUCE,**" free.

A. I. Root, Medina, Ohio.

ROOT'S GOODS FOR THE EAST.

Bee-Keepers of the East should

Bear In Mind that we have established at Syracuse an **Eastern Branch**

where our Bee-keepers' Supplies are kept for sale, and prompt shipment. You can save time and freight by ordering from our Eastern Branch. We have engaged Mr. F. A. Salisbury to take charge of this business, and he will treat you well. He will be pleased to send you a list of goods kept in stock.

Address all orders,

EASTERN BRANCH, F. A. SALISBURY, Agent, Syracuse, N. Y.

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HONEY COLUMN.

CITY MARKETS.

BUFFALO. *Honey.* The honey market is virtually unchanged; reasonably active at 15@16 for fancy 1-lb. comb. In a few instances a little more is obtainable. No. 2, 12@14; 1½ and 2 lb., 13@14. Dark buckwheat, etc., from 12c downward, as to actual condition. We are still in need of a good many tons for our winter trade, and feel entirely safe in assuring consignors that it is impossible to do more with it than can be done in this market. We will advance all that it is worth, or those who do not wish to consign will do us a favor to write us.

BATTERSON & CO.,
Nov. 9. 167, 169 Scott St., Buffalo, N. Y.

CHICAGO. *Honey.*—Fancy white comb honey is scarce, brings 18c and demand good. dark grades of comb are very slow of sale. Extracted steady at 6@9c, according to quality, color, and flavor.

R. A. BURNETT,
Nov. 9. 161 So. Water St., Chicago, Ill

BOSTON.—*Honey.*—We quote our honey market a little slow, a car of California comb honey having arrived and selling at 16@17c, and the Vermont selling slowly from 17@18. Extracted, 8@9. *Beeswax*, 27.

BLAKE & RIPLEY,
Nov. 10. Boston, Mass.

CLEVELAND. — *Honey.* One-pound sections, A1 white honey, 17@18c; second grade, 15@16; dark, 13@14. *Beeswax*, 18@23, according to quality. Beeswax is rather dull sale at present.

REYNOLDS & WILLIAMS,
Nov. 9. 80 & 82 Broadway, Cleveland, O.

DETROIT. *Honey.*—Comb honey in fair demand at 13@14c, and for best white 15 could be had. Extracted, white, 8@8½. *Beeswax*, 25.

Nov. 10. M. H. HUNT, Bell Branch, Mich.

CINCINNATI.—*Honey.*—There is a good demand for honey, with a scant supply of all kinds. Extracted brings 6@8c on arrival; comb honey sells at 14@16c in the jobbing way, Although honey is scarce, there is no demand for dark comb. *Beeswax* is in good demand at 22@25c on arrival for good to choice yellow. Supply is good. CHAS. F. MUTH & SON,

Nov. 9. Cincinnati, O.

KANSAS CITY.—*Honey.*—We quote: Comb, No. 1 white, 1-lb. comb, 17@18; same, No. 2, 15@16; No. 1 amber, 1-lb., 16@17; same, No. 2, 10@12. Extracted, white, 7@7½; amber, 5@6. The receipts of comb honey are light, demand good. *Beeswax*, 20@25.

Nov. 10. CLEMONS-MASON COM. CO.,
Kansas City, Mo.

ST. LOUIS.—*Honey.*—There is no material change in the market except strained, which shows an active demand. We quote: dark comb, 8@10; medium, 10@12; white, 16@17. Extracted dark, in barrels, 5¼@5½; medium light, 5¾@6; light, 6½. *Beeswax*, prime, 24. D. G. TUTT GROCER CO.,

Nov. 10. St. Louis, Mo.

KANSAS CITY.—*Honey.*—There is a good demand for honey, but a very light supply. Price of 1 lb. comb, white, 17c. Extracted, 6@7½. *Beeswax*, 22@25.

HAMBLIN & BEARSS,
Nov. 10. 514 Walnut St., Kansas City, Mo.

NEW YORK. *Honey.* The market is good. Buckwheat honey in 1-lb. sections brings 10½@11½; buckwheat honey in 2-lb. sections, no demand. Clover honey in 1 lb. sections, glassed, and pasteboard boxes, in good demand for fancy at 17c. Clover, in 2-lb. sections, 14@15. Extracted, clover, 8@10.

CHAS. ISRAEL & BROS.,
Nov. 12. 110 Hudson St., New York.

FOR SALE.—5000 lbs. choice white-clover and basswood honey; all in 1-lb. sections, packed in 12-lb. single-tier crates, delivered at R. R., 16c per lb.

21d FRED H. FARGO, Batavia, N. Y.

FOR SALE.—10 barrels choice white-clover honey. Will put it up in almost any style of package desired. Price on application. 20tfdb

EMIL J. BAXTER, Nauvoo, Hancock Co., Ill.

WANTED.—Farmers in the cotton States to know that lintless cotton is now the biggest discovery in America. Lintless cotton yields nothing but lintless cotton seed, and is a very valuable plant in this age of cotton-seed-oil mills. Price from Nov. 1, $1.00 per pkg., one quart in each pkg.

R. H. CAMPBELL, Madison, Morgan Co., Ga.

Eastern Supply House.

We furnish every thing used in the apiary, and at bottom prices. Illustrated circular free.

I. J. STRINGHAM, 92 Barclay St., N. Y.

21 20db Please mention this paper.

FOR SALE. A No. 2 Corley Saw Mill; 3 head-blocks with patent board dogs; 52-inch Disston circular saw; 64 feet track. Capacity of mill 8000 to 12,000 feet in ten hours. Mill is nearly new, Warranted to be in first-class running order.

M. H. FAIRBANKS,
HOMER, CORTLAND CO., N. Y.

WESTERN BEE-KEEPERS' SUPPLY HOUSE.

ROOT'S GOODS can be had at Des Moines Iowa at ROOT'S PRICES The largest supply business in the West. Established 1885. Dovetailed Hives, Sections, Foundation, Extractors, Smokers, Veils, Crates, Feeders, Clover Seeds, etc. Imported Italian Queens. Queens and Bees. Sample copy of our Bee Journal, "THE WESTERN BEE KEEPER," and LATEST CATALOGUE mailed FREE to Bee-keepers.

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WANTED.—Second-hand printing-press, 7¼x13¼, or near this size. Give description, price, etc.

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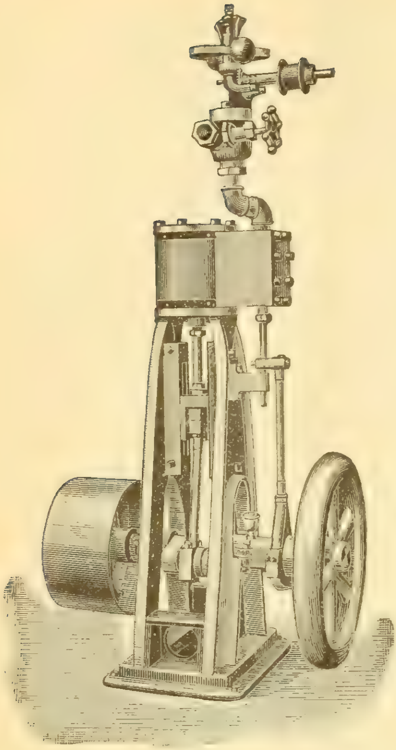


ENGINES.

Yes, we build a few. We have, in connection with our large bee-plant, a first-class, well-equipped machine-shop, in which we build all kinds of bee-hive machinery, saw-mandrels, saw-tables, dovetailing-machines, foundation-mills, extractor-gearings, etc., and, when our men have nothing else to do, engines. These are upright in style, and economize floor space. They are built under the special supervision of an expert machinist of many years' experience. The rods are all of finished steel. The cross heads and slides are of the substantial locomotive style. The cylinders are lagged with Russia iron, and are brass-bound. The boxes are babbitted, and can be easily taken up for wear. The piston-head is provided with two expansion-rings. The bright parts shine like a dollar. The governor is a Waters, substantial and reliable. We have three of these engines running in our works. One has been running two years, with excellent results. Making them, as we do, during our dull season, they are immeasurably superior to the ordinary engines of their kind, and the price is low, considering the very fine quality of the work. Price of the 2½-horse-power engine, governor and govener-belt, all ready to attach to a boiler, $75; 5 h. p., $100; 7½ h. p., $125; 10 h. p., $150. These prices are net, although we will make the usual discount for cash. If you want a thoroughly well-made engine, you can not do better than to select one of these, providing the range of power is within what you need. While we compete in quality of workmanship we can not compete in price with some of the cheap engines on the market.

A. I. ROOT, MEDINA, OHIO.

TILE ✠ DRAINAGE.

BY W. I. CHAMBERLAIN, A. M., LL. D.,

Formerly Secretary of the Ohio State Board of Agriculture, and late President of the Iowa State Agricultural College. At present Associate Editor of the Ohio Farmer.

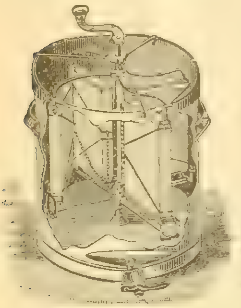
This is a valuable companion to our other rural books. It embraces the experience of forty years of one of our foremost practical agriculturists, who has laid with his own hands over 15 miles of tile.

Price 35c; by mail, 40c.

A. I. ROOT, MEDINA, OHIO.

Stanley Automatic Reversing

HONEY-EXTRACTOR.



As announced in a late number of GLEANINGS, we have leased from G. W. Stanley the right to make his automatic extractor, and we bought from E. R. Newcomb his stock of materials and machines unsold. This stock consists of about twenty-five machines, two and four frame. To work it off quick, and give us a chance to put out machines of our own make, we offer these machines as long as they last, at one-fourth off old prices. We will sell the two-frame machines as they are for $8.00; the 4-frame for $12.00. They are crated ready for shipment, with crank direct on the center-shaft. We will attach our new horizontal gear, as shown on page 14 of our catalogue, for $3.00 each extra.

A. I. ROOT, Medina, Ohio.

LITHOGRAPH LABELS

In 12 Colors, at $1.50 per 1000.

The 12 colors are all on each label. They are oblong in shape, measuring 2⅛x2⅝. They are about the nicest labels we ever saw for glass tumblers, pails, and small packages of honey. We will mail a sample, inclosed in our label catalogue, free on application, and will furnish them postpaid at the following prices: 5 cts. for 10; 25 cts. for 100; $1.00 for 500; $1.75 for 1000. A. I. ROOT Medina, O.,

---

A Four-Color Label for Only 75 Cts. Per Thousand.

Just think of it! we can furnish you a very neat *four-color* label, with your name and address, with the choice of having either "comb" or "extracted" before the word "honey," for only 75 cts. per thousand; 50 cts. per 500, or 30 cts. for 250, postpaid. The size of the label is 2⅛x1 inch—just right to go round the neck of a bottle, to put on a section, or to adorn the front of a honey-tumbler. Send for our special label catalogue for samples of this and many other pretty designs in label work.

A. I. ROOT, Medina, O.

Cash for Beeswax!

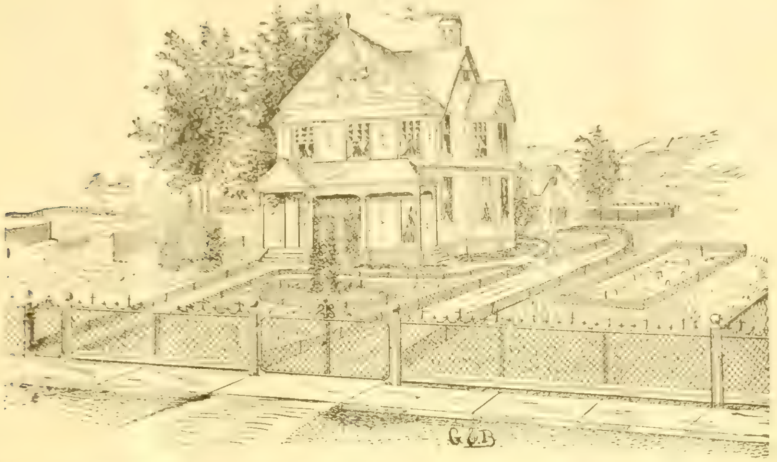
Will pay 23c per lb. cash, or 26c in trade for any quantity of good, fair, average beeswax, delivered at our R. R. station. The same will be sold to those who wish to purchase, at 29c per lb., or 33c for *best selected wax.*

Unless you put your name *on the box,* and notify us by mail of amount sent, I can not hold myself responsible for mistakes. It will not pay as a general thing to send wax by *express.*

A. I. ROOT, Medina, Ohio

STEEL WIRE NETTING and FENCING.

CALVANIZED AFTER BEING WOVEN.



The cut above illustrates some of the many uses to which this wire netting and fencing may be put about the home. You will notice back of the house a poultry-yard. Probably the greater part of the netting heretofore sold has been used for fencing poultry, and nothing can be devised that is cheaper, better, or more durable.

It is the cheapest, costing less than 75 cts. per rod for posts, staples, and all. It will last a lifetime, and never needs repairing, because it can't get out of order. Being galvanized after it is woven, it will never rust. It is easily put up and taken down. It can not be blown down, as the wind goes right through it. On this account you don't need very heavy posts where the fence is used for poultry only. It does not keep out the light and fresh air, so needful to poultry. It is neat and ornamental, and always looks well if properly put up. It is so invisible that fowls can not see the top, and will not fly over. You can see inside as well as if there were no fence at all.

But the uses of wire netting are becoming more and more diverse. If you wish to let poultry run, and have flower-beds, or choice crops that you wish to keep from them, all you need is some of the lightest netting, not over one to two feet wide, stretched around as shown in cut above. This can be attached temporarily to light stakes, and quickly removed when desired. For holding up green peas and beans, tomatoes, and other such crops, nothing could be cheaper or more convenient than the light narrow netting, 12 or 18 inches wide. You notice, by table of prices below, that the light weight, No. 20, 3-inch mesh, is only 60c a roll, 150 ft. long, 12 in. wide. This is indestructible, and, if properly handled, can be used year after year, over and over again. You could not furnish any thing else half as good for the money; and the time of putting this up and taking care of it again after the crop is gathered is insignificant compared with sticks or brush, or any thing else that can be used.

For stock fences the heavier weights are used, or the cottage fencing, which is extra heavy and well made. There are a great many makes of netting and fencing, and it is needless to say that some are inferior to others. We still handle the G. & B. brand, the same as we have always sold since we began selling this class of goods, because we believe it to be the best value for the money of any on the market. The goods for this year are better than ever; being made of stiff steel wire it will not kink and get out of shape so easily. Our contract for the coming year enables us to make very low prices. The 3-inch mesh we are able to offer at about ⅓ less than last year, and other sizes over 10 per cent lower, or as low as we have ever been able to sell it before.

COTTAGE GATES.

There are many sizes of these gates, made with plain and ornamental top, all of which, with many other interesting things, are listed in our 28-page netting and fencing catalogue, mailed on application. Gates like above, 3 feet wide, are worth $2.70 each, 3 feet high; $2.85 for 3½ feet high, and $3.00 for 4 feet, including latch and hinges; with plain top, 30c each less. We do not keep these in stock, but ship from New York or Chicago. This is also true of most of the netting and fencing listed below. We have in stock at Medina all widths of 2-inch No. 19, and also 3-inch No. 20, 12 inches wide, for pea and bean trellis.

We are prepared to make special low prices to dealers, and those who buy in large quantities. On goods shipped from New York or Chicago we must add 25 cts. for cartage on each shipment, large or small. When you pick out from the table what you want, and deduct the discount for quantity, if 5 rolls or more are ordered, then add 25 cents for cartage. The following table gives our net price per roll of all sizes, in lots of from 1 to 5 rolls. On orders for 5 rolls, deduct 5 per cent; 10 rolls, 10 per cent; 25 rolls or more, 15 per cent. Less than full rolls or parts of roll cost double the full roll price.

—Size—		Price 1 roll 150 ft. long and fol'wing widths.								
Mesh	No. Wire	12 in.	18 in.	24 in.	30 in.	36 in.	42 in.	48 in.	60 in.	72 in.
3 in	20	$ 60	90	1 20	1 50	1 80	2 10	2 40	3 00	3 60
3 "	19	70	1 05	1 40	1 75	2 10	2 45	2 80	3 50	4 20
3 "	18	90	1 35	1 80	2 25	2 70	3 15	3 60	4 50	5 40
3 "	17	1 20	1 80	2 40	3 00	3 60	4 20	4 80	6 00	7 20
3 "	16	1 50	2 25	3 00	3 75	4 50	5 25	6 00	7 50	9 00
3 "	15	1 90	2 85	3 80	4 75	5 70	6 65	7 60	9 50	11 40
3 "	14	2 50	3 75	5 00	6 25	7 50	8 75	10 00	12 50	15 00
2 "	20	90	1 35	1 80	2 25	2 70	3 15	3 60	4 50	5 40
2 "	19	1 00	1 50	2 00	2 50	3 00	3 50	4 00	5 00	6 00
2 "	18	1 30	1 95	2 60	3 25	3 90	4 55	5 20	6 50	7 80
2 "	17	1 70	2 55	3 40	4 25	5 10	5 95	6 80	8 50	10 20
2 "	16	2 10	3 15	4 20	5 25	6 30	7 35	8 40	10 50	12 60
2 "	15	2 90	4 35	5 80	7 25	8 70	10 15	11 6	14 50	17 40
1½	20	1 20	1 80	2 40	3 00	3 60	4 20	4 80	6 00	7 20
1½	19	1 40	2 10	2 80	3 50	4 20	4 90	5 60	7 00	8 40
1½	18	1 80	2 70	3 60	4 50	5 40	6 30	7 20	9 00	10 80
1¼	19	2 20	3 30	4 40	5 50	6 60	7 70	8 80	11 00	13 20
1 "	20	2 40	3 60	4 80	6 00	7 20	8 40	9 60	12 00	14 40
1 "	19	2 80	4 20	5 60	7 00	8 40	9 80	11 20	14 00	16 80
1 "	18	3 30	4 95	6 60	8 25	9 90	11 55	13 20	16 50	19 80
¾	20	3 60	5 40	7 20	9 00	10 80	12 60	14 40	18 00	21 60
¾	19	4 30	6 45	8 60	10 75	12 90	15 05	17 20	21 50	25 80
Cottage lawn, and garden fencing, per roll of 10 rods.										
2 "	14	4 00	6 00	8 00	10 00	12 00	14 00	16 00	20 00	24 00

¾ or 1 inch staples for above, 15c per lb.

A. I. ROOT, = = MEDINA, OHIO.

To Damn with Faint Praise was evidently not the intention of the Rev. Wm. F. Clarke when he wrote the following, which is clipped from an essay on "Apicultural Literature; Its Influence and Effects," written by Mr. Clarke, and read at the last meeting of the Missouri State Bee-keepers' Association:

"THE BEE-KEEPERS' REVIEW comes nearer to my ideal of what a bee-journal should be than any other as yet extant on this continent. It is not without its faults, but they are mainly those which time and experience will correct. Mr. Hutchinson does not get offended when they are pointed out, but courts criticism and hails correction, deeming it a friendly act to point out an error in opinion, expression, or grammar. He is both courageous and courteous. He is willing to give all a fair hearing. An accomplished bee-keeper: a natural born editor, who takes to literary work as a duck takes to water; a man with the enthusiasm of both his callings—bee-keeping and literature—I see in Mr. H. the rising star of bee-journalism. I am glad he is already so highly appreciated, and hope, as I believe, that his shadow will never grow less. In the BEE-KEEPERS' REVIEW we have the ablest, broadest, most intelligent, manliest, and freest exponent of apicultural ideas that has yet appeared in the western world. These expressions of opinion are spontaneous, unbought, disinterested, and made from no other motive than the promotion of the greatest good to the greatest number of bee-keepers."

Reader, if the foregoing is true, you ought to be a subscriber to the REVIEW. If you think the praise extravagant, then send ten cents for three late but different issues of the REVIEW, and judge for yourself. The REVIEW is $1.00 a year; remainder of the year free to new subscribers for 1893. REVIEW and "ADVANCED BEE CULTURE" for $1.25. Stamps taken, either U. S. or Canadian.

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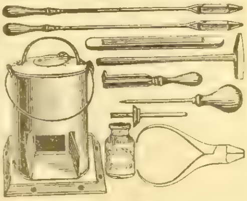

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Consists of fire-pot, soldering-irons, solder, and soldering-fluid, with tools complete as shown in cut, with directions for soldering different metals, and how to keep your soldering irons in shape. Whole kit, boxed, 12 lbs. Shipped on receipt of $2.00. Agents wanted.

O. & L. OATMAN,
8-7db **Medina, Ohio.**

AUSTRALIA.

Wanted—every bee-keeper in Australia to send for my large illustrated catalogue of bee-keepers' supplies, American queens, etc., etc. Post free.
18-23db **H. L. JONES, Goodna, Queensland.**

Please mention this paper.

800 **FERRETS**, a fine lot of **Scotch Collie Pups** and a trained bird-dog for sale. Price list free. **N. A. KNAPP, Rochester, Lorain Co., Ohio.**
18tfdb

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A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS.
ILLUSTRATED SEMI-MONTHLY
PUBLISHED BY A. I. ROOT.
$1.00 PER YEAR MEDINA OHIO

Vol. XX. NOV. 15, 1892. No. 22.

STRAY STRAWS

FROM DR. C. C. MILLER.

THE BEES now spend much time in meditation.

TO PAINT HIVES, a writer in *L'Apiculteur* uses propolis dissolved in alcohol.

THE BRITISH BEE-KEEPERS seem quite enthusiastic about making a good show at the World's Fair.

IF YOU HAUL BEES, do it as soon as possible, so they can be sure of a fly before going into winter quarters.

IT LOOKS STRANGE to see in the French bee-journals the Clark and Hill smokers quoted at the same price, and the Bingham less than the other two.

IF THE HORSE in 40 years has increased from 2:40 to 2:04, Secor, in *A. B. J.*, thinks careful breeding might make the bee beat its present record. And why not?

THE ARTIFICIAL COMB of Pastor Warnstoff, with full-depth cells, it seems, is made with cells on only one side. In Germany it is sold for about 45c per pound.

DO YOU TAKE GLEANINGS and never yet had A B C? Better stop a year when your time is out with GLEANINGS, and get the A B C—that is, if you can't afford both.

FINISHED HAULING bees home Oct. 25. Never had them more heavily stocked for winter; so if I didn't get any crop to sell, at least I don't have to feed. Always something to be thankful for.

PRESIDENT SECOR (*A. B. J.*) would like to see *Apis dorsata* introduced, but adds, "I have no hope that they will prove an acquisition." But he thinks a hundred years of cultivation might mollify their tempers.

MR. EDITOR, do stop letting Rambler tell about those "bands and bands of quail that needed to be put on toast." It makes my mouth water. But then, what does the old bach know about making toast?

CHAS. DADANT thinks nine-tenths of the bee-keepers in France are *fixistes*, or box-hive men, and nine-tenths in this country *mobilistes*, or movable-comb men. I'm afraid he's too complimentary to this country.

"CAN THE FINDER of a bee-tree on my land claim the bees and honey?" is in substance a query in *A. B. J.* The answers are varied enough to make one who reads all of them conclude that, if the finder of the land removes the tree without injuring the honey, he is liable to trespass on the bees.

BOX HIVES have more consideration across the water than here. The *Centralblatt*, an excellent German bee-journal, devotes a page of each number to *beginners* with box hives.

THAT BEVEL EDGE on the under side of the Hoffman top-bar is a good thing to give extra stiffness, only I believe my bees do just a little better when no bevel is cut away at all, but the whole top-bar left ⅞ thick.

"BEES IN THEIR NATURAL homes have the benefit of this capillary force," says friend Scudder, p. 803, speaking of pores in the wood. That points toward the value of porous surroundings; but its force is somewhat impaired by the fact that the bees seem to do all they can to stop up the pores with propolis.

A. TEYNAC reports an experiment in which five colonies with queens raised under violet light stored 5 per cent more honey than five colonies equal in all other respects, except that their queens had been raised under ordinary light. It reminds one of the blue-glass craze that swept over this country a few years ago.

MY PATCH of Chapman honey-plant, after being well cultivated till it had a good start, was left untouched till this year, when a good crop of hay was taken from the ground with never a stalk of the honey-plant. It will not hold the ground any more than Indian corn. As a honey-plant I doubt its great value, even if it would grow without cultivation.

MAKE SURE THAT MICE do not make havoc with bees wintered in cellar. Close up all entrances with heavy wire cloth, three meshes to the inch. Don't wait till they are cellared, for, as soon as the bees become dormant with cold, the mice will take up quarters in the hives, and it's no good to shut them up after they are in. Shut them out while the bees are lively.

AN ESTABLISHED REPUTATION is worth something among bees as well among men. When a colony is set in a new place, or brought from another apiary, you need to give it more protection against robbing than another colony of equal strength that has always been there. Bees bent on mischief will give it a thorough trial till they find what stuff it is made of.

DID YOU EVER NOTICE that, if you put brood-combs in an upper story, not allowing the queen to go up, not only will the cells become emptied of brood but of pollen as well? Before the days of excluders, I kept upper stories for extracting, a small auger-hole between; and, no matter how much pollen was there, it gradually disappeared, although there was no brood present.

THAT HOFFMAN-FRAME trouble, that friend Peete so graphically describes on page 798, I do not believe will prohibit their use in his locality. In the spring, when the propolis is hard enough for his "toy pistol" act, it will not be such a tremendous job for him to scrape off the surplus propolis. But I'm just a little skeptical about that knife-blade edge being best in that locality—or anywhere else.

CHAPMAN HONEY-PLANT has quite a "boom" in *Deutsche Imker*. Five hundred bees visit each plant daily in good weather; cultivated for bees alone it pays a high rent; it is an ornamental plant; after blooming it makes good fodder for stock, and it grows and flourishes without care. A fine showing; but among all the thousands in this broad land who tried it, if there is a single one who thinks it of value enough to occupy the ground will he please arise and be counted?

LANGSTROTH'S REMINISCENCES.

THE CIRCUMSTANCES OF HIS CONVERSION IN COLLEGE.

During my college course my studies were considerably interrupted, and once entirely suspended, by severe attacks of melancholia, a full account of which I have already given to the readers of our bee-journals.

Until my senior year I felt no interest in personal religion, and yet it was my special good fortune to secure the friendship and intimacy of the most religious men in my class, some of whom assured me that my course in the rebellion had won their admiration and respect. Associated intimately with us were quite a number who did not call themselves Christians. I believe that I can truly say that we aimed to cherish a high sense of honor and purity, and that our mothers and sisters might have heard without a blush our most private conversations. Since I have mingled freely with men, I am quite persuaded that what I have said of the tone of our conversation is very far from being a common experience; and I grieve to say, that, even among men whom the world calls respectable—nay, even among those who call themselves religious—conversation may too often be heard which is very far from promoting that purity of heart enjoined upon us by the Savior.

In our senior year, an Amherst student named Peter Parker joined our class. Although not distinguished for scholarship, he was remarkable in awakening a deeper religious interest among Christian men, and in acquiring the respect of many who had hitherto been indifferent to religious considerations. I was then living without prayer, and without reading my Bible. I was taken sick, and Mr. Parker visited me. His prayers and conversation moved me much; but as soon as I recovered I tried to avoid him as much as possible. Joining me one day after recitations were over, he proposed a short walk. I knew very well what his object was; but I consented, fully intending to get rid of him as soon as possible. We walked and we talked, until moved, as I now believe, by the Holy Spirit, I went with him to the room of Prof. Goodrich to ask him what I must do to be saved. This holy man had been for some time unusually earnest in his prayers for a revival of religion in Yale College. He seemed to feel that he could not endure the thought that our class should leave college while so few gave any evidence that they meant to consecrate themselves to Christ. I was the first one who had sought his counsel. How he talked with me, how he prayed with me, how he wept for me and with me, only those who knew him well can fully understand. I left his room, feeling that I could never rest until I had found forgiveness and peace in a Savior's love. The blessed work spread from one to another. Noah Porter, afterward so eminent as president of Yale College; Lyman Atwater, in time to become a familiar name in the classic halls of Princeton, and many others prominent for scholarship in our class, were brought out of darkness into the marvelous light of the gospel of Christ. Nearly one hundred and fifty hopeful conversions were numbered among the college students, and multitudes from the residents of New Haven. Our class, which was so soon to finish its course, had its destinies entirely changed by this gracious work of the Holy Spirit; and if doubters of revivals of religion could read the life-record of those who were then converted, few of them, I believe, would be doubters any longer.

There was one classmate from the South, a gentleman by birth and education, of the name of Seddon, quite noted for his profanity and boasted infidelity. When reproved by his associates he would readily admit that it was an ungentlemanly practice to swear, and then with an oath say that he could not help it. Coming one day to my room he spoke to me substantially as follows:

"Langstroth, I see that a great change of some kind has come over you, and I want you to tell me frankly all about it." After listening with deep attention he said, "You know that I have called myself an infidel; but I confess to you that I desire to believe in the truth of Christianity. What books would you advise me to read?"

While recommending "Paley's Evidences of Christianity," I said to him, "Seddon, by all means read the Bible." Soon after, he came to one of our prayer-meetings. Only a few, however, knew for what purpose he came. Many thought that he sought to learn how to make the scoffing prayer-meetings which they were holding a greater success. With most he gained as little credence as at first Saul of Tarsus found among the persecuted Christians. Not long after, he invited me to his room; and when I asked him if he had read Paley's Evidences he said that he had not, for he never was sincere in his professions of infidelity. He then handed me a Bible, and asked me to read what was written on one of its blank leaves. It was the words of a loving Christian mother, expressing the hope that her dear son would make that book the guide of his life. "My mother," said he, "gave me that book when I left home for college, and I promised her to read it every day. Until quite recently it has lain entirely neglected at the bottom of my trunk. Langstroth, can any one who has such a praying mother as I have—can any one who has daily seen the godly life of such a mother as mine—ever come to believe that there is no truth in the Christian religion?"

O Christian mothers! if you have sons who have strayed ever so far from the paths of righteousness, get new strength as you read this story. The cords of a praying mother's love were twined around the heart of that poor boy, even in his hours of deepest degradation, and at last he was saved. He did not live to complete his college course, but died full of faith and the Holy Ghost. Before his last sickness, conversing with him alone in his room, I asked him, "Seddon, have you never been tempted to swear since you became a Christian? Don't you remember you often said that you could not help swearing?" With a smile upon his face he pointed to the tongs which lay against the stove, and said, "Langstroth, not long ago I had a very large fire in that stove; and, thoughtlessly taking hold of the tongs, they blistered my fingers; and as I flung them from me one of the old horrid imprecations came to the very tip of my tongue; but, thank God, I was able to choke it down."

I joined the College Congregational Church in the spring of 1831, and, after graduation, entered the Theological Seminary of Yale College. My father's business had now become so much embarrassed that he could give me no further assistance. I knew how many applicants the American Education Society had from candidates for the ministry who were just beginning to get a liberal education, and I felt strongly persuaded that if, with a college course, I had not sufficient energy to complete my theological studies from my own earnings, I gave but poor evidence of having any call to preach the gospel. I therefore took classes in some of the schools for young ladies in New Haven while I pursued my theological studies. Afterward I taught in a school opposite West Point, and, in the fall of 1834, became a tutor of mathematics to the freshman class in Yale College.

While in the tutorship I had some very pleasant experiences, and never suffered, like many of my predecessors and successors, by being smoked out of my room or having my windows broken, etc. I attribute my escape from these and other annoyances to a somewhat natural courtesy of manner, but very largely to the strong personal interest which I took in my students. If I found any of them getting behindhand in their studies, I was always ready to offer them private instruction, without any charge. All such kindness was fully reciprocated, as the following incidents will show:

In winter, prayers and recitations were before sunrise. I had for some time been feeling quite unwell, and one morning I overslept myself. Roused by a knocking at my door, I opened my eyes and realized at once that I was late. I dressed as fast as I could, and on opening my door I found a deputation, who politely informed me that my class was waiting for me, as they knew that my state of health had probably caused me to sleep over. By immemorial custom, for the first time, I believe, broken over, when a tutor failed to be on hand his class waited about five minutes, when, if he did not appear, they rushed out of the room, filling the adjoining halls with yells of exultation which proclaimed their tutor's delinquency to all in reach of their voices. It seems that, after waiting for me the usual time, just as they were about to disperse, a student whom I had befriended plead with them to hold on for a moment, reminding them of my kindness and courtesy, and proposed that a deputation be chosen to inform me that they were still in the recitation-room.

A few weeks later the same experience from a similar cause befell me, and again a deputation from the class waited upon me. If the first occurrence was a subject of more than common talk among instructors and students, the second one attracted much more notice. After I reached my class I thanked them with deep emotion for their kind consideration, but assured them that, if I made another sleep-over, I believed they would be justified in following the old custom. L. L. LANGSTROTH.

Continued.

SUGAR-FED HONEY.

WHAT THE DADANTS THINK OF IT.

What is honey? Prof. Cook answers: "Honey is digested nectar. Every one understands that honey is the liquid product of bees, which they store in the cells of their combs. . . . That honey is digested nectar is just as true, although not as evident to the unlearned. . . . Digestion is simply changing our food so that it can be absorbed. . . . Many substances, like albumen and cane sugar, . . . must be changed — digested — before absorption can take place." (Something in defense of sugar honey), *Bee-keepers' Review*, page 262.

According to the above quotation, all the savants who do not accept this assertion of Prof. Cook, that honey is digested nectar, even *the best authorities in chemistry*, in Europe as well as in America, *are unlearned.* To my knowledge, Prof. Cook can boast of being the first who wrote that *the more or less complete* change of food by its mixture with the gastric juice is digestion, for the simple fact is against such a theory. As soon as some cooked starch is introduced into our mouth and masticated, our saliva mixes with it. Then this starch, before going down into our stomach, is *more or less* transformed into glucose by the chemical action of our saliva.* It is the same with the nectar gathered by bees, which is *more or less* transformed in their honey-sac, by the saliva or juice of their glands, before going into their true stomach.

Of course, as no savant will say that the starch is digested before going into the stomach, I can not see how it can be admitted that the nectar is digested before going into the true stomach of bees. I say *true* stomach, for "the honey-sac acts as a temporary reservoir for the collected nectar" (Cowan). Furthermore, according to the well-known English chemist, Bloxam, digestion is the change of the food into chyme by the gastric juice, the bile, the pancreatic juice, the intestinal fluids, and the separation and absorption of the chyle contained in the chyme.

Milne Edwards, of Paris, wrote that digestion begins by the mastication of the food and ends by the absorption of the chyle and the defecation.

I could quote scores of savants who agree with the chemists just named, and I challenge Prof. Cook to find any one of them teaching that digestion consists only in the mixture of the food with the gastric juice and its more or less complete transformation. But this criticism is not the main purpose of my article.

Prof. Cook writes: "If honey produced by feeding bees with cane sugar is entirely wholesome, of which there can be no doubt; . . . if our best chemists class it with the best honey from choicest plants, does it not stand to reason that it can be, may be, and, we say, *ought* to be, a product with no tarnished fame or reputation? . . . Let us not cry knavery or fraud, but candidly investigate the matter; and if this course does offer a right and justifiable means of increasing our profits, let us adopt it" (*Review*).

The main argument of Prof. Cook is, that such product is wholesome, and that the chemists class it with the best honey from choice plants. Let us suppose that I am so dextrous in counterfeiting greenbacks that all the most learned chemists and all of the best engravers pronounce my papers as true, would it follow that I am right and honest in making and putting them in circulation? It would rob nobody, since every one of my greenbacks would be accepted as the ones issued by the government. No doubt I would rob the nation of their value; but the man who would sell sugar syrup as honey would not only get money on false pretense, but would make, also, a disloyal competition with the honest bee-keeper. He would not be more honest than a money-counterfeiter, and he would ruin our business by destroying the confidence of our customers. So Mr. Cook would have acted wisely if, instead of boasting, in several papers, of the results of more or less scientific tests, he would have kept them to himself. But neither science nor practice has yet given its last words on this question. Furthermore, my experience in this matter inclines me to predict that the adulterators will meet more difficulties than are anticipated; yes, even if those who try do not succeed, it is certain that the unwise articles written by Messrs. Cook and Hutchinson, far from benefiting the bee-keepers, will have a bad influence on the market.

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* Dictionnaire de Médecine de Littré et Robin.

I am glad to see our old friend Langstroth agreeing with us on the dishonesty of selling sugar syrup as pure honey.

CARDINAL FLOWER (LOBELIA).

As a confirmation of what Mr. W. E. Gould wrote in Gleanings, page 800, I can say that there is, near the short path leading from our home to our shops, a plant of cardinal flower. I saw it every day, for years, during the flowering season, yet I have never seen a single bee on it. Nevertheless, it gives very small seeds in abundance, so there is a proof that it doesn't need the visits of bees to be fecundated. The lobelia family contains very poisonous varieties; among them are the *syphilitica* and the *inflata*, or Indian tobacco-plant. Of course, such qualities can not attract bees. Chas. Dadant.

Hamilton, Ill., Nov. 3.

[Not knowing that the elder Dadant was preparing an article on the subject, Camille P. wrote the following:]

Friend Ernest:—No, no, no! a thousand times no! You are not wrong in your position against the selling of sugar fed to bees under the name of honey. Such a thing is no more nor less than adulteration, unless the consumer is told what the article is; and whenever he is told what it is, he will be unwilling to pay honey prices for it, or, for that matter, to buy it at all. Hutchinson is doing the reverse of what he should do if he wants the support of the honey-producers. It would be just as wrong to sell sugar under the name of honey as it would be to sell honey-dew under the name of clover honey. Let every tub stand on its own bottom.

Yours for true honey,
Dadant & Son.

[It seems to be understood by both A. I. R., elsewhere, and the Dadants, that Mr. Hutchinson and Prof. Cook intended that this sugar comb honey should be sold as the pure product of the hive. The writer feels sure that both intended that it should be sold for only what it is. Mr. Hutchinson's editorial, however, on page 274 of the *Review*, which we publish in another column, rather leaves the impression (not intentional, we are sure) that the sugar comb honey was to be sold as the pure article from the flowers—that is, no statement to be made as to whether it was pure honey or something else. From what correspondence we have had with Mr. Hutchinson relative to the same point, we are certain that he did not so intend it; and while we disagree with him as to the probable tendencies of the advocacy of sugar comb honey, we feel it but justice to him that this statement should be made.

It seems to us there is one point, incidentally referred to by C. P. Dadant above, that has not been sufficiently brought out; and that is, if sugar comb honey can be produced at a cost of $7.50, and sold for $20.00 (as alleged by Mr. Hutchinson in another column), that, sooner or later, competition will bring the cost of production and the selling price nearer and nearer together, because, on the assumption that the consumer *knows* what he is buying, he will very soon figure out for himself the difference between cost and selling price. So great a margin could not possibly be realized unless the fact of the origin of the sugar honey were concealed, and the honey sold as a pure article from the flowers; hence we argue that large profits can not be obtained, except dishonestly. We know Mr. Hutchinson well enough not to question his motives, and, for the most part, his good judgment; but we feel strongly impressed by the fact that dishonest persons will make bad use of the knowledge; and that the daily papers, which have no love for nor interest in our pursuit, will make "capital," to the serious detriment of the interest of the bee-keeper.

Some may wonder that we should give so much space for the discussion of a subject that, we fear, presages injury to our pursuit; but now that the discussion has *already* been opened in another journal, and the practice of feeding bees sugar syrup to produce honey favorably commented on, is the reason why we feel it our duty to use our influence against what we consider a dangerous position on the part of our esteemed cotemporary the *Review*; for among our bee-keeping exchanges there is no paper that we prize more highly.] E. R. R.

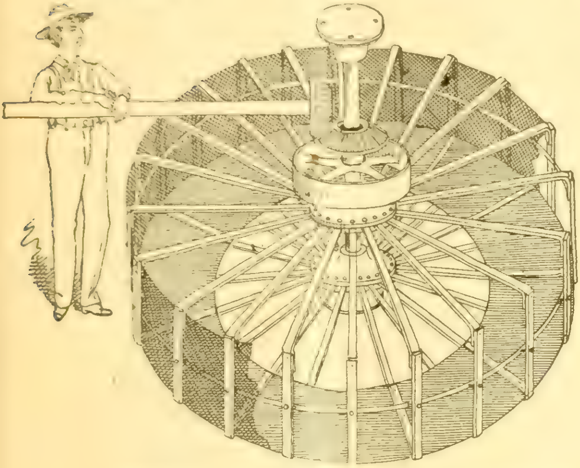
THAT MAMMOTH STEAM HONEY-EXTRACTOR.

A. W. OSBURN, OF CUBA, EXPLAINS ITS MERITS.

Mr. Editor:—That steam power extractor has been in every sense satisfactory. The points of excellence about my extractor (when run by steam) are so many that, to properly describe them all, would make this article much too long for Gleanings, so I must content myself by naming a few of them only.

I will speak first of the superior work that it does, which is all that any one could desire; in fact, it does the nicest work of any thing I ever saw in the shape of an extractor. Why, I will try to tell you. The upright shaft being fastened solid, both at top and bottom, there is no tremble nor shake to the reel; and it matters not whether the reel is evenly loaded or not. If it can not move at top or bottom, it must run true. Now, it will not take a man long, who has extracted much honey, to see the great advantage in this, in more respects than one. First, on account of the reel running so perfectly true there is no jar nor shake to the comb; and on account of this, the machine can be run much faster, without injury to the comb; and where there is brood in the combs, not one-half as much brood will be thrown out by my machine as with the ordinary hand machine, because the honey, being heavier than the larvæ, goes out first, and no one can judge or tell any thing about what the difference is in the work done by my steam power extractor, or that done by a hand machine. When I tell you what I have said is true, and you take into account the great difference in centrifugal force, my reel being 7 feet 3 inches in diameter, and making 260 revolutions per minute, the centrifugal force of it is 13 times greater than one 2 feet across, making the same number of revolutions, and still it throws out nothing like the amount of larvæ that the hand machine does. Does it throw the honey out? Yes, it does, better than any thing else a man ever saw in the shape of an extractor; and is it not a little more pleasant and satisfactory, too, to sit down and rest while the extractor and engine are doing such satisfactory work for you? I think it is. I have had as good men to work for me as ever turned an extractor; but I never had one that was willing to kill himself trying to get the honey *all* out the combs with a hand machine.

My extractor is not a reversible machine, as you know, and I am not disposed to say any thing of the reversible machines, any more than that I have never had them do work so satisfactory for me as the non-reversible ones. I have used two different makes; one I owned, and the other I did not. There is just as much difference in extracting honey with my extractor run by steam, and undertaking to do the same work with a hand machine, as there is in sawing wood with a bucksaw, or doing the same work with a good steam outfit. I have probably turned an extractor to throw out about as much honey as most men; but I don't want any more of it. I am perfectly willing to let some one else have that pleasure and honor.



OSBURN'S MAMMOTH HONEY-EXTRACTOR—INSIDE VIEW ONLY.

Now in relation to the cheapness or the cost of the two; i. e., steam or hand power, to operate. To run my extractor properly, say from 7 in the morning till 4 in the afternoon, will take not to exceed 40 cents' worth of coal; oil, 5 cents, and in that time you can throw out 10,000 lbs. of honey if you have it to throw out. But suppose you have but 2000 lbs. to get out. Is it not much pleasanter to do it by steam power than by hand? Was not the first extractor ever made a great improvement over the boy's way of getting the honey out of the comb by swinging the comb fastened to one end of a string over his head. Any man will say yes. I will figure the cost of the two methods, steam or hand power, from our standpoint here, where, in the best localities, hundreds upon hundreds of colonies can be kept in one apiary, and such a plant as I have, is so far ahead of hand machines that there is no comparison between the two. I will let you figure the cost in your country, where only small apiaries can be kept in a place, and hand power and small machines are always used.

A. W. OSBURN.

Punta Brava, Cuba, W. I., Oct. 19.

[Very recently we built a mammoth honey-extractor, for a party in Cuba, the same constructed after the manner of the one used by A. W. Osburn. After it was completed we took a photo of it, with a workman standing beside it; and the result given above will give the reader some conception of its size. The engraving shows the internal arrangement for extracting 21 combs at a time. Although Mr. Osburn does not say so, we presume the same is set up in a large wooden tank, the upright shaft being socketed to the ceiling, and to a substantial bearing in the bottom of the tank. A pulley is supposed to be put on the end of the horizontal shaft, or about where the man stands. This pulley is then connected with the engine direct. The other pulley, just below the beveled gear, is designed to receive the brake, as so large a machine, when in full motion, would not stop, probably, under a minute or two, unless braked down. The upright shaft is 3 inches, and the horizontal 2$\frac{7}{16}$ in diameter. The supporting-arms are rods of steel $\frac{3}{4}$ inches square, making the whole inside reel 7 feet 3 inches in diameter, and the beveled gear is 13 inches in diameter. The combs are held in a perpendicular position by an inside ring midway between the bottom and top of the reel and two inches from the wire cloth. To reverse, the combs must be lifted out in the good old-fashioned way, and set in again the other side to.

Mr. Osburn is probably correct in regard to this machine's freedom from vibration. Other things being equal, the larger the reel the less the vibration due to any slight eccentricity. It seemed to us it was strong enough and heavy enough to hold a man's weight at its periphery, and we have no doubt that it will do its work perfectly. Of course, such a large extractor as this will be useful in only a very few localities in the world—such localities as would furnish nectar-bearing flora for five or six months in the year. We doubt whether it would be practicable in many places even in California. For the great majority of bee-keepers, the two-frame extractor is sufficient; and even four and six frame reversible extractors have a capacity ample for the needs of the most if not all of the largest extracted-honey men in the United States.]

SOMETHING FURTHER ON THE INTRODUCING SUBJECT.

FREELY GIVE, FREELY RECEIVE.

Well, well! it seems that Doolittle's article on page 617 was read with a "relish" by Dr. Miller; and if my correspondence is any criterion to go by, that article was read with much "relish" by many others. It is "kinder funny" that, when a "man is down," folks will all "prick up their ears" and be more interested in his *being down* than they are in the man, or in all he has done for the good of the world in all of his previous life. Let a minister of the gospel fall into an error, and how the newspapers of the land will publish it, so that all eyes will see it, while all of his life may have been spent in doing good up to that time, without a single word of encouragement, or words of cheer being said to help him bear the burdens the Master has enjoined upon him, or so that he might have shunned the pit into which he fell, or been of still greater usefulness in the world. What I have to say in this article is not said in a fault-finding spirit, but with the hope that we as bee-keepers may be led into a broader plain, and up to a higher elevation along the line of what shall be the "greatest good to the greatest number."

Soon after that article, on my failure to introduce a queen, appeared in print, I began to be showered with letters, and I almost wish it were the proper thing to give all of those letters, with the names attached to them, in the columns of GLEANINGS. It would seem that many—yes, very many—have forgotten the great doctrine of the "brotherhood of man," and the one desire which, taking possession of the hearts of many of the people, seems to be to get all they can by hook or crook of the things of this world, no matter what becomes of the poor fellow-beings from whom they can obtain it. I had prided myself in the thought that bee-keepers as a class were not so selfish as the rest of the world; but since that article I have about come to the conclusion that they are made up of about the same material as the rest of mankind. Some of the letters received were kind and sympathizing; some were glad I wrote as I did, for it expressed their condition exactly, and, as Dr. Miller says, "gave them a bit of comfort to think that others besides themselves are sometimes beaten by the bees." Such as these gave me comfort; but others were very different. As a sample of one class, I give this from one of the largest queen-breeders in the world: "Ah, ha! I see by GLEANINGS, page 617, that Doolittle has forgotten how to introduce queens. Let me say that I have not lost a single fertile queen by introducing in five years. Probably you know that certain conditions cause failure." And that was all there was relative to this subject of introducing queens in that letter. As a sample of another class I give this: "I see in GLEANINGS for Aug. 15, over your signature, a piece in which you say you do not know of any sure, easy way of introducing queens. I use a plan that is sure and easy, and I have never failed myself, nor did I ever hear of any one else failing that introduces as I do. If you would really like to know how to introduce a queen easily and safely, and without a failure, I will tell you how for a small consideration. I should like some Italian queens for my own use; and if you have them you can cheaply pay me for my advice."

In 1870 I wrote my first article for publication, and my bee-keeping life is familiar to all the readers of GLEANINGS and other bee-papers; for I have never done "any thing in a corner," but have given all of my successes and reverses, together with all my plans and methods, to the public as freely as I would to my own family, always realizing that, through the philanthropy of others, I have attained the success I have achieved. After having thus given all that I know of bee-keeping to the world, I am asked by some to give still further of what I have wrought out by "sweat and muscle," to buy something which should have been as freely given to the world as I have given what I have done, and am laughed at by others, and told that "certain conditions cause failures," without even a hint at what those conditions are or how they may be avoided. When a young couple start out on life's voyage they put all their energies together, that a comfortable and happy home may be made. The husband does not try to defraud or take advantage of the wife, nor the wife the husband; but both work together for the accomplishing of the same object—the blessedness of a comfortable home. If God gives them children, both parents and children work together to make both life and home a pleasure. The children do not try to defraud the parents nor the parents the children, but all work together for the happiness of *all*. Now, I wish to say that what is good for that family, as pictured above, is good for the great family of bee-keepers in this nation and in the world. Still further, what is good for the family is good for a township; what is good for a township is good for a county; what is good for a county is good for a State; what is good for a State is good for a nation; and what is good for a nation is good for the world. May God help us to get out of this state of not loving our neighbor as ourselves, and come out into the glorious light and liberty of the gospel of our Lord and Savior Jesus Christ. "Freely ye have received, freely give."

Before closing I wish to say that two or three very kindly wrote out their plans in full and sent them me, telling just how they introduce queens. These I wish to thank, especially so as they give me the privilege of having the plans published to the world through any paper I might wish to give them. The reason I do not give them is because the essential features of these plans have appeared in our bee-literature of the past; but the willingness they showed is just as deserving as if the plans were new. G. M. DOOLITTLE.

Borodino, N. Y.

[Friend D., like yourself we have letters every little while from people who say they have not lost a queen in introducing, in five years, or that they have not lost one in a hundred; and it always troubles me to receive such letters, knowing, as I do, how frequently the very best of us make sad failures. In fact, there is hardly a thing laid down in bee culture that is not likely to turn out so contrary to our previous experience or expectation that the whole industry seems to be a series of surprises, and they are not always "happy surprises" either. I think that, if I were to set about it in real earnest, I could introduce 25 queens, without a failure; but I should have to work hard and take a good deal of time with some of them. In introducing imported queens, where they are worth several dollars each, we have abundant experience in the matter—yes, experience when it is a pretty serious thing to lose even one. So far as I know, no plan has ever been discovered that is infallible; and these people who claim that they have something of the sort that they can not communicate unless they receive a consideration should be shunned at the outset as bad and wicked; and the poor fellows seem to be so much behind the times that they do not even know that most good people read their real motives at a glance.] A. I. R.

PRIORITY OF LOCATION.

DR. MILLER ANALYZES THE POINTS BROUGHT OUT BY W. G. HEWES.

The problem you have tackled on page 802, Mr. Editor, is by no means an easy one. You say you would be mad if you had found a grand location for bees, and some other chap should bring 100 colonies and settle beside you. But what does that prove? Wouldn't you be just as mad if you had found a grand location for a shoestore, and, after settling there, the other chap should come and scoop you out? Don't you think "some moral right is due *shoe*-man No. 1 for discovering for himself a good field" as well as the *bee*-man? Please don't be too one-sided.

Take the case that friend Hewes hints at. Mr. Lazicus has struck a "grand location," capable of giving in a good season 20 tons; but, through shiftlessness and lack of sufficient bees, he gets only one-tenth that amount? Is the whole of creation to stand off and look on while he does the dog-in-the-manger act? Will it not be better for Mr. Upandatit to sit down beside him and get that other 18 tons—that is, unless he can find an unoccupied location where he can get 20 tons?

But suppose Mr. Upandatit is settled on his 20-ton spot, and Mr. Lazicus hears of his big yelds, comes along with 100 colonies, and sits down and gets 2 tons of the crop. How would Mr. U. like that? He could hardly object, if friend Hewes is correct in saying, "An inexperienced person generally manages so badly that what little honey he gets makes no difference in the other's crop?" But isn't that talking somewhat at random, friend Hewes? Suppose Mr. U. has enough bees to lick up all the nectar that is produced, and gets a crop of 20 tons. Then suppose Mr. L. comes with his 100 colonies and gets off the same ground a crop of 2 tons. Is there any kind of management on the part of L. that will make the difference to U. any less than 2 tons?

But it must not be forgotten that L.'s bees must have something for their own consumption; and as it is estimated that each colony consumes about 60 lbs. per annum, it will take 3 tons for 100 colonies. That 3 tons, added to the crop of 2 tons, makes 5 tons that L.'s bees have gathered from the flowers. Will you please tell us how L. can manage so badly that there will not be just 5 tons, clean cut, taken out of U.'s 20 tons? I think you would object with some force, probably with a force of about 5 tons, against the coming of L.; yet it is difficult to see how, in the first case, you are going to let U. come in on L., and in the last case reverse the matter. Who is going to properly draw the distinguishing line? I am not saying which is the right way; I am only showing the difficulty in the case.

The ground is taken, that, whenever a man can better himself by it, it is his duty to enter a field occupied by some one else, on the ground that "self-preservation is the first law of nature." But the "first law" is not always the *best* law. There is a higher law that says, "Thou shalt love thy neighbor as thyself." Moreover, it is not always true that "self-preservation is the first law of nature." It is not true among bees. Every worker-bee is ready to lose its life for the sake of the rest of the colony. Its motto is not "self-preservation," but "the greatest good to the greatest number;" and are not our civil laws based on this very motto?

With this motto in mind, I think it will not be so very hard to see why the case of the bee-keeper is not exactly parallel to that of the merchant. Suppose that, in a village, there is one merchant and one bee-keeper. Another merchant takes up his abode in the village, and also another bee-keeper. Upon which accession will there be the most self-congratulation among the villagers? Hear Mrs. Jones say to Mrs. Smith, "Isn't it nice that we have a new store? The old store had no competition, and we just had to pay whatever they asked. Now we can have our choice of the two places." But you will hear no such remark about the new bee-keeper, for, if the ground was fully occupied by the first man, he can not and will not sell honey any cheaper than before, for he can not afford it so well now. It is very true, that the first merchant could afford to sell goods cheaper when he held the ground alone, but, as a rule, he does not till competition compels him, consequently competition secures "the greatest good to the greatest number."

But Mr. Hewes says, "I can not see why a bee-keeper should be more exempt from competition than a merchant." Candidly, I can't either. Is he? One year I raised half as many strawberries as we could use in our family. My neighbor did the same. Each of us ate all we raised. Was there any competition between us? Certainly not. The next year we raised more, and used them up the same way. There was no more competition than before. The succeeding year we raised them by the acre, and, of course, sold the most of them. Then competition began, and each of us had to sell our berries for a little less than if only one of us had been in the field. Do you notice that there was no competition till there was selling? Our *raising* berries did not make competition, but our *selling* did. Is it not the same way with honey? I never knew the time, since I commenced the business, that I had not competition. Whether I sold half a pound to a home customer, or shipped a carload to a distant point, there were always others ready and anxious to sell to my customers, and competition with them always influenced my price. But if a man comes in and spoils my field for both him and me, I don't call that competition any more than I would call it competition for a merchant next door to another to pile up empty boxes on the sidewalk so that customers could hardly enter either store.

To be continued, if the editor permits.

Marengo, Ill. C. C. MILLER.

[There, now, doctor, your logic has mixed us all up; in fact, we've almost forgotten on which side of the fence we were. To tell the truth, we tried to be *on* the fence. At all events, we shall not try to collect ourselves till we hear from you again on the subject.]

THE NEW CRANE SMOKER.

ITS CONSTRUCTION, AND HOW IT CAME TO BE INVENTED.

For many years I have felt that there was need of a better smoker than any now offered in our bee-journals. Broken springs, burned bellows leather, clogged blast-tubes, burnt clothing from sparks that escaped from the base of the fire-barrel, a large hive containing a good colony of bees burned up, the scarred trunk and limbs of an apple-tree beneath which it stood, and, above all, the constant feeling that followed me that I ought to get a larger supply of smoke with a stronger blast for the effort I made, set me to thinking whether a better smoker could not be made. As the smoker is the most important tool of the apiarist, it is very desirable to have it as near perfect as possible. Even if it costs a little more at first, the time saved will soon pay the difference. Not only do we want an instrument that will not easily get out of repair or scatter sparks, but we want one that will give a large or small volume of smoke at the will of the operator.

Some years ago I constructed a smoker with two leather valves, the upper one placed in the mouth of a wooden air-flue connecting with the base of the fire-barrel. While this smoker seemed to give me more smoke, and a stronger blast, than any other I had seen, it did not fully satisfy me. Having to make some new ones last winter, I began anew to study the whole question, giving it more time and thought than I had before been able to do. I made a great variety of valves and connecting-flues. What I wanted was a smoker easy to operate, that would not readily clog with soot or creosote, or get out of repair, and that would give the strongest blast and volume of smoke possible. The results of my efforts are before you.

A 3-inch barrel is fastened to a 6x8-inch bellows, by two pieces of ¾-inch hoop iron. Each piece is bent about ¾ way around the barrel, and fastened by wire, and then bent at such an angle as to give the greatest strength, and then bolted to the bellows. The bellows springs are on the outside, one on each side of the bellows, and fastened by metal clasps, and can be removed at will, and made stronger or weaker to fit the hand of the operator. They are so made that it may be said they will neither break nor wear out. For my own use I fasten a hook to the small end of the bellows between the springs to hang the smoker to the edge of the hive while at work, and find it very convenient.

To secure the strongest blast of air through the fire-barrel, filled with all sorts of combustible material, and, perhaps, a layer of ashes and spent fuel upon the grate, it is necessary to have a closed air-flue between the bellows and base of the fire-barrel. But if we connect with a metal tube, large quantities of smoke and sparks will be drawn into the bellows when it opens, and that will soon ruin it, besides causing the fire to go out unless the bellows is kept in constant motion. There appear to be only two ways of getting around the difficulty: Either we must use a blast-tube partly or wholly cut off, which does not entirely prevent smoke and sparks from being drawn into the bellows, and, besides, appears to weaken the blast, and permits sparks to drop upon the operator or hive-packing, or we must place a valve in this blast-tube, or air-flue, in such a way that it will open when the bellows closes, forming with the air-flue a closed passage from the bellows to the fire-barrel, and then instantly close to prevent smoke being drawn into the bellows.

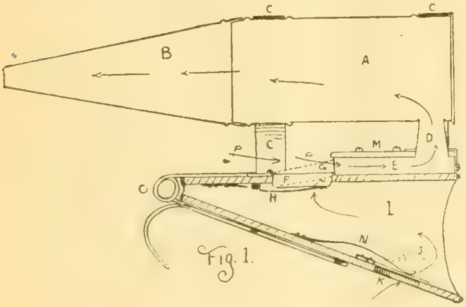


Fig. 1.

SECTIONAL VIEW OF CRANE SMOKER.

An illustration of this principle is seen in the diagram, Fig. 1. The slightest pressure upon the bellows opens the valve F, near the center of the bellows, and, with the air-flue E, forms a closed air-flue, or blast, from the bellows to the barrel. As soon as the pressure is removed, or the air in the bellows exhausted, the valve instantly closes, thus preventing any smoke from entering the bellows. The valve, being closed when the smoker is not in use, permits a sufficient draft of air through the open mouth of the air-flue to keep the fuel burning in good shape. This valve is hinged at one end, and plays loosely into a slot, N, Fig. 2, on either side of the mouth of the air-flue. That no air may escape around the valve, a piece of flexible leather is stretched across the valve on the inside of the bellows, with a hole through it opening into the valve.

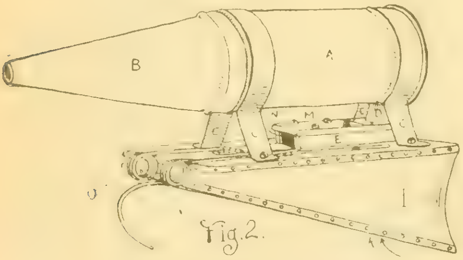


Fig. 2.

THE CRANE SMOKER.

The grate is so constructed, that, with the strong blast, I have had no trouble with ashes or sparks coming down into the air-flue. The diagrams make the working of this smoker so plain that I need not explain further. Its advantages must be evident to any experienced bee-keeper. It will be seen that no smoke or sparks can be drawn into the bellows, nor can any sparks drop or fly from the base of the fire-barrel into the clothes of the operator nor into the packing of the hive.

I have not been troubled with any creosote—that sticky, tarlike substance that, in most smokers, runs down the sides of the smoker and over your hands, not unfrequently soiling the sections. Almost any kind of fuel can be burned in this smoker, after a fire is once started. My assistant told me that he worked my smoker for half an hour on nothing but green grass. I would not, however, recommend grass as the best fuel. This smoker does not easily get choked with soot or creosote; yet, if in careless hands, or from long use, the air-flue or metal valve gets coated with soot it can be easily and quickly taken apart and thoroughly cleaned, so it will work as well as when new; and although so easily taken apart, when put together it is one of the strongest smokers made. The barrel can, in a moment, be taken off when worn out, and replaced with a new one.

More important than any thing else, so far as my experience goes, this smoker will throw a much larger volume of smoke with far greater force, with the same kind of fuel and the same effort, than any other smoker. It is not always necessary to use large quantities of smoke, nor desirable; but when you do want it, you are apt to want it very much; besides, one can work much more rapidly, if he has an abundance of smoke in reserve, than without it, and time is money.

Some time ago I was at work opening a hive, when the bees became very angry, and declared war in earnest. I closed my eyes, took my smoker, and gave a few puffs of smoke about my person. On opening my eyes I could not see even into the hive I had open before me, so dense was the smoke. In a moment more the smoke drifted away and I was left to finish my work without interruption, and was master of the situation.

In this section it is rare that we have much honey to be gathered after basswood bloom; and in a poor season, like the past, almost every hive has to be fed to fit them for winter. How much, can be told only by careful examination, as bees are mostly in large hives, and weighing them is impracticable. Heretofore I have found it very difficult to look them over until cool weather, on account of robbing. This year I looked over a number of yards of bees; and although the weather was warm most of the time, and robbers very abundant, I lifted almost every comb in every hive without any serious trouble from robbing. In fact, I worked with as little fear from robbers as I usually do in a good flow of honey. An assistant with a good smoker in hand made robbing an unequal game; and after trying it for two or three hours each day they would usually give it up. Perhaps the kind of fuel had something to do with it. I used old cotton and burlap cloths that had been used over the brood-frames, and gnawed by the bees until worthless. I will say, just here, that there is reason to believe that propolis-coated rags or cloths are the very best materials for smoker fuel to be had. They will last longer than any thing else I have tried. The smoke will not stain the whitest section, as I have found clear wood smoke will do. It has a pleasant odor, and is less offensive than any other smoke; and, more important still, this smoke will quiet the bees quicker and more perfectly than any I have heretofore used. But to use such old rags to the best advantage requires a smoker with a strong blast; for, as soon as the propolis warms and softens, the rags are apt to settle together and prevent the air from passing through the smoker.

From what I have written, it may seem as though I were somewhat enthusiastic over the good qualities of *my smoker;* but I have little fear but that any other bee-keeper who has many colonies of bees to handle, who may give it a fair trial, will be equally enthusiastic in its praise. J. E. CRANE.

Middlebury, Vt., Oct. 22.

[When the Crane smoker was first illustrated and described in the *Bee-keepers' Review*, we were prejudiced against it, because, up to that time, all arrangements in bee-smokers for preventing smoke from going into the bellows by means of a valve connected to a continuous flue to the fire-box, had proved to be complicated, and a failure. But as Mr. Hutchinson spoke highly of it we were open to conviction, and soon after wrote to Mr. Crane, asking him to send on one of his smokers, which he did. We were delighted with it at once; and *then* we saw that it was difficult to understand the real principle without seeing the implement itself. But we trust that the painstaking care we have given to the new engravings will enable our readers to catch the idea. Perhaps we should add that the little valve F G, Fig. 1, just the moment the bellows is compressed, lifts up to the position shown by the dotted lines, making a continuous canal or flue to the smoker-cup; and as long as pressure is exerted upon the bellows, the air can shoot on uninterruptedly into the opening N, Fig. 2; but just the *instant* it is released, and long before the suction of air backward can take place, the little valve F drops back, in obedience to a little spring, effectually preventing any return of air or smoke into the bellows. It is impossible for smoke to come in contact with the valve, and hence it will remain clean. In the month or so we have used it, the valves have been perfectly clear of creosote accumulations. The grate is omitted, but is fastened into a swedge just before D, Fig. 1.

In our opinion, there is no smoker that has ever been produced that will yield the volume of smoke that this will; and for blast it is fully equal to the Clark. The only trouble we see with it is, that the shut-off-valve device must be made mechanically perfect; and while ours have worked for us a month very nicely, it is possible that, in a year or so of time it might give trouble.*

BASSWOOD AND ITS PROPAGATION.

WHY IS IT IMPRACTICABLE TO GROW IT FROM SEED?

Why doesn't basswood seed germinate, and produce plants? I am induced by J. A. Green's question, on page 770, to ask this question, as, in all my observation, covering a period of several years, I have never been able to find a single seedling, even under old trees, where the ground was covered with seed. We are told that stock feed upon the young plants, and it is very likely true, as most of the old trees here are found growing upon steep bluffs and places where stock can not go. Experiments with seed mixed with sand in boxes, kept over winter, both in cellar and exposed to freezing, have resulted in failure. Now is the time of year that seed is ripe, if it ever is; and I would ask those who have succeeded in making it grow, to tell us how to keep the seed over winter, and how to handle it to have it grow. It is one of the greatest drawbacks that we have in the planting of this valuable honey-tree, that the trees are hard to get in any quantity of suitable size for rapid planting. I see you have taken them out of your late catalogues. From the disposition of the tree to sprout from the roots, one would suppose it might be propagated from small root-cuttings, like the blackberry; but, again, we find all sprouts attached to the main stump, and none growing from buds or eyes upon the small roots. L. C. CLARK.

Granada, Kan., Oct. 22.

[Friend C., basswood seed does germinate and produce plants, providing you learn how to make it do so. In the first place, the seed must be gathered and sown as soon as it is fully matured—usually in September or October. A coating of wood dirt or forest leaves over the seed seems to be beneficial. Sometimes perhaps 75 per cent of the seed will grow, but usually not more than half, and sometimes only 25 and even 10 per cent. If you can find a piece of basswood forest where no stock is permitted to pasture on it at all, you can usually find plenty of young basswoods. We have taken from our price list only the small-sized basswoods. The reason is, we sold out and did not succeed in getting young trees so we could get them at our former prices. It can be propagated by cuttings; but sowing the seed is usually the cheapest and best way. The subject of raising the cuttings, and also planting and sowing the seed, has been fully written up in some of our back numbers—perhaps a dozen years ago.]

A. I. R.

THE INDIAN ORPHANAGE OF INDIAN TERRITORY.

WHAT IT IS, AND ITS WORK.

Friend Root:—Knowing that you and many of your readers are interested in missions as well as in bees, I thought I would write a little in regard to my trip to the Cherokee Nation, Indian Territory. I had two objects in view in coming here. One was, to look up the Territory as to its probable value as a bee country; and the other, to visit and inspect the Gospel Mission and Indian Orphanage, conducted by my friend J. E. Wolfe and his good wife, who is an educated Cherokee lady. The orphanage farm and wood-working shop are situated five miles west of Vinita, I. T., in a most beautiful plain, surrounded by gently rolling hills and narrow strips of timber skirting the numerous small streams. I find the orphanage the nucleus of what may some day result in great good to this whole Territory. They have a shop 40 x 60 feet in size, devoted mostly to the manufacture of chairs. Since coming here I have made some Langstroth hives, and left them a full set of patterns, so that, in the future, they can keep bees along with their other branches of farming, which comprises all kinds of crops and gardening suitable to this locality of short mild winters and long pleasant summers.

This is a non-sectarian mission, and the children are taught simply Bible Christianity; and the aim is, to give them a fair education and fit them for a useful life. The children are industrious, happy, and bright, and live and work together as harmoniously as any family of sisters and brothers.

Later. Since the above was written, the smoker got a little wet; the wood swelled, and stopped the valve. This part of the smoker might be made of metal; but this would make it quite expensive.

As regards bee-keeping, there is a great abundance of fall flowers, especially goldenrod, which seems to cover the prairies; but as they have no white clover, basswood, nor alfalfa, I do not think it would pay to keep many bees in a place, therefore it is not a country for bee-keepers; but for gardening, stock-raising, and fruit-growing, I think it is fine, and in time it may become a fair bee-country.

If there is any one who has boys' and girls' clothing, or a dollar to spare for a worthy Christian work, I would say both are much needed here now. They take in, feed, and educate the little destitute Indian orphan boys and girls, in order to make Christian men and women of them. It is a great undertaking, as there is so much expense connected with getting the necessary buildings up and the farm opened. All this has been undertaken on the plan pursued by George Müller, of Bristol, England; but in time it may be made self-supporting to a great extent, as they have 1500 acres of fine land on which are water, wood, good building-stone, and a coal-bed. With all these natural advantages, and a fine climate, where is there a better place to establish such an institution?

Vinita, I. T., Oct. 21. H. LATHROP.

RAISING LETTUCE IN WINTER.

BY E. C. GREEN, OF THE OHIO EXPERIMENT STATION.

Friend Root:—In reading your book, "What to Do and How to be Happy While Doing It," I find there is a great deal said about growing lettuce in the winter; and while the rules laid down in that book were not followed, and, in fact, I had never read them carefully, yet the plan or way of raising lettuce given there, especially the one by Mr. Davis, is so similar to what we have hit on that it seems to me they might be called the common sense of lettuce-raising. There is no great secret about the matter—not much more than there is in raising a crop of corn, if the conditions are right; but there is the trouble. If you have flues that smoke, and glass that lets in but half of the light, and such drawbacks, you will not be able to raise a good crop of lettuce any more than you would a good crop of corn on poor worn-out land, with no manure to put on it, and bad weather to contend with.

We started this winter with a house that was almost as light as outdoors, the glass being 16x24 inches. We heated with hot water, so there was no smoke, dust, nor fumes of any kind to injure the young plants, and the soil was as good as we knew how to make it; and, as Mr. Davis says, "the better care and attention given the crop, the better success you will have." To illustrate what care and careful attention will do, I will say that, during the first part of the winter, by close watching we succeeded in keeping our greenhouse almost free from that pest known as plant-lice, by the use of tobacco dust; but as we grew more lettuce, and had more work to do, our vigilance relaxed somewhat, and the little plant-sucker multiplied until now we are well supplied with them. But now they are attacked by a disease that bids fair to exterminate them, the disease being a fungus which is similar to the one we often see on house-flies, and called by scientific men *Empusa muscæ*. They have not been so bad as to show any effects on the crop, however.

Starting in with favorable circumstances, and being able to control the plant-lice, we have been able to grow a large amount of lettuce, which brought fair prices, and to carry on a number of interesting experiments. Our first was on the different distances apart in setting the plants in the bed. Our conclusions were, that six inches was the best, all things considered; less than that crowds the plants; and more puts too few plants on a given space to be profitable.

Our fertilizer experiment was not very satisfactory. We made several tests with the nitrate of soda; but in no instance could we see any good done by it. I have seen results from other stations where it has been used, and it does not seem to increase the crop, but makes the plants rot worse. I should have liked to try guano, but it was not included in the fertilizers that we tried.

Our experiment with sub-irrigation was one of the most interesting that we have tried, and it showed the most decided results; but we have not come to any definite conclusion on the subject, for it has not been tried in enough different ways to speak with certainty; but I believe, from what I have seen, that this method of watering, combined with a good mulch on top of the bed, will do more to help keep the rot in check than any other way. The rot, or lettuce mildew, has been one of our serious troubles in the work, and there seems to be complaint from other sources. I was in one house this winter that had nearly ten thousand plants in it that were nearly ruined by the rot. I hope something can be found that will prevent it in a measure. E. C. GREEN.

Columbus, O.

[The communication above was sent us over a year ago; but by some blunder it did not get into the journal. Prof. W. J. Green, brother of the writer of the above, visited us a few days ago, and he said this matter of sub-irrigation was giving some most encouraging results with other crops than lettuce, both in the greenhouse and in the open air.]

IRRIGATION—RAISING WATER FOR BY ENGINES, WINDMILLS, WATER-WHEELS, &C.

SOMETHING TO THE POINT, FROM ONE OF OUR FRIENDS IN THE IRRIGATING REGION.

Friend Root:—Your correspondent who wishes to know something about power to raise water 24 feet to irrigate a two-acre garden should not invest in a wheel. It would take an immense wheel to lift the water so high, and the expense with a wheel is sometimes quite heavy. Of course, this depends somewhat on the character of the stream and the floods that may occur. Our first settlers, acting independently of each other, used wheels; but now that there is coöperation in securing a water supply, wheels are seldom used.

There is no patent on the old-style wheels; but a new one, to rise and fall with the stage of water, has been patented. What its real merits are I can not say. Looking at the question from this distance I think your correspondent would best use a windmill. Perhaps instead of a tank he has a good location for a small reservoir. In this case a reservoir might be preferable.

It would be difficult to make celery ground too wet. The ground could be kept constantly wet from the windmill while running, without danger from following rains. If the windmill should stop running, the crops would not suffer for ten days or two weeks, even if there is no rain.

If the "new celery culture" is followed (that of close planting so that the plants do not need banking), a great deal of water will be required;

however, the amount of land to be irrigated is too small to justify much expense, even though very close cropping be followed. In many cases our people use a steam pump for lifting water, with entire satisfaction; but this is too expensive for a two-acre garden, unless the pump could be used for other purposes as well.

There are many things to be taken into account in irrigating besides securing a supply of water. Where the supply is short, the saving of water is a study in itself. The advantages of irrigation should not be conceded to the arid region alone. Irrigation is essential to complete success in high-pressure gardening in almost any country. E. BRAYTON.

Pueblo, Colo.

LADIES' CONVERSAZIONE.

THE CONSER PLAN OF NON-SWARMING.

MRS. AXTELL EXPLAINS WHAT IT IS.

I believe that the Conser plan of non-swarming will pay much better than taking away the queen. We never could succeed in getting the bees to work so well for comb honey (and that is the kind of honey we take, except a very little extracted each year to supply the few calls we have for it) as when they have a vigorous laying queen in the hive. The more vigorous the queen, the greater the quantity of honey gathered from that hive. I fully agree with Mr. Conser when he says, "No, indeed; the queen should be kept at all times at home when the bees are so busy" as they are in swarming time.

The Conser plan of non-swarming is, to arrange a hatching-box in the center of three hives, one on either side and one at the back of the box, connecting the box with each hive by a $\frac{11}{16}$-inch tube between the hive and box about the center of the brood-comb. In the center of the tube is a queen-excluding piece of zinc to keep the queen from going into the hatching-box. The box is divided into three apartments—one apartment for each hive. There being three together, there are bees and brood enough to keep each other warm at that time of the year. Each apartment is covered with a piece of heavy ducking that keeps two covered while the third one is being manipulated, and over all is a board cover like other hives. Each little apartment has its own entrance from the outside. The hives should be put into groups of three before swarming time comes, by moving them a few inches, or a foot, each day, or by placing them in that position when brought from the cellar; but all should be good colonies, and the queen laying in the outside combs.

Eight or ten days before the honey season opens from white clover, stock the hatching-box from brood from the hives thus: Open one of the hives and hunt out the queen, and lift out the comb that she is on, and hang it on the comb-rack, or lean it against the hive until ready to place back. Take out two combs filled with capped brood (not unsealed, but capped brood) and place them with the adhering bees in the apartment of the hatching-box that is connected with the hive, first closing up the entrance of the tube that leads back into their own hive. Leave the tubes closed for 48 hours; leave the outside entrance open—at least, we did; but he did not, in his directions to us, say whether it should be left open or shut.

The comb the queen was on should be returned to her hive with an empty comb placed on each side of the comb she was on. Treat the two other hives in the same way as the one described. In eight or ten days the same treatment should be gone over again, this time using the two combs in the hatching-box, and one empty one, returning them to the parent hive and placing one on each side of the comb the queen is on, as before, and taking out three combs of capped brood and placing them in the hatching-box as before; but the tube need not be closed this time, as there will now be bees enough that have learned to stay in the hatching-box to care for the brood. I should think it would not be out of place to brush off part of the bees when taken out of the hatching-box, but he did not direct us so to do, and we did not.

At this second manipulation place the surplus cases on the hives, as the hives are now very full of bees, and will immediately start to work in sections if bait combs are given them. In about a week or eight days, go over the treatment again, and put a second surplus case on under the first. If the surplus cases were small they may need three by this time if honey is coming in. From two of the hives thus treated we got a few more pounds of honey than from any other hives in the apiary. In the other colony the queen failed, and I took it for granted she was dead, as I found queen-cells and saw no eggs or larvæ, so I gave them a queen, and at the next manipulation I found cells and the old queen, so I broke up that colony. The two colonies did not swarm. We applied somewhat the same principle to other colonies, that of giving the queen more room, none of which swarmed; but we found queen-cells in hives that I think had old queens; but by taking out one comb in the center once in six or seven days—the same comb each time—and destroying the cells we saw, there was no swarming from those hives. We did not look very carefully for cells. I think this year was not a very bad one for swarming. The honey came in slowly at first, and we gave plenty of room, so they did not get the swarming fever badly, as in other years.

The plan of giving an empty comb in the center frequently, and each time taking the same comb, as I have mentioned, and also mentioned in this journal, works well, gives nearly as good results as the Conser plan, as that comb can be used to build up nuclei, and the strength of the colony is kept up by the remaining combs, and the bees worked well in the sections. Our hive is not very well adapted to the Conser plan of manipulation, having the closed-end frames resting on the bottom-board, and hive clamped at the side; but any hanging frame that will admit of frames being taken out of the center, would, I think, work better. Working only three hives, after the Conser plan, hardly gives a fair trial. I think we shall want to try more another year before fully deciding, though I am satisfied that the queen needs more room rather than less than the usual size of brood-nest. True, it leaves a very large colony at the close of the honey harvest; but they will gather enough more honey to make up the difference, and will find and store honey longer than smaller colonies. I believe that such large colonies, if the brood-nest is left alone, will always, or nearly always, have enough to winter on, even if the fall harvest is short.

The Conser plan is patented, or a patent is applied for; but if it works as well as I think it will with the hanging frames, it will soon pay one who uses the hanging frame to use it, even if he does have to pay ten or fifteen dollars for a sample hive and a right to use it.

If the plan itself does not come into general use it may lead to something that will. Even if it does not prevent *all* swarms, it would prevent so many that swarming would be managed easily. True, in reading over the plan it looks as if it were considerable work to carry it out; but it is not so much as if the bees were left alone to swarm, and the work can be done at one's leisure, when not in a hurry in the heat of the day, with half a dozen swarms all needing to be cared for at once.

If a person has but a few colonies, and wishes to make the most of them, I think it will pay, or some similar plan, so that we can keep enormous colonies together, as they do so much better work in sections, and do not have to be constantly watched; and if a person has a great many colonies, and help is scarce, that, or a similar plan or plans, will pay to care for a part of the colonies, that the colonies that are not thus treated may be more easily cared for, and thus make swarming more easy for the apiarist. But with all the plans that are followed, we must or ought to have one of the B. Taylor, or a similar device, to catch the swarms if they come faster than we can easily care for them. I feel quite in favor, also, of taking out a comb of brood from the center of a few colonies every few days from the colonies that are the most difficult to watch, and the most likely to lose swarms from. I don't think it necessary to put an empty comb in each time. If the lower half is empty after the second time of changing, I think it would answer. Such care of colonies can be taken in the cool of the evening or morning, and at one's leisure.

IN BEE CULTURE.

Let him who wishes to XL.
Or who aspires to B most Y's,
Remember this: A Y's man O's
Much of his wisdom to his I's.

And he must not his ears XQ's;
But ears must hear and I's must C,
And he must all his senses U's
Who hopes a Y's man e'er to B.

MRS. L. C. AXTELL.

Roseville, Ill., Nov. 1, 1892.

[The Conser plan of non-swarming, if we understand it correctly, is simply a scheme for the getting of populous colonies in small hives; and the presence of but little brood in the hives at a time, we suppose, takes away the desire for swarming. We question, however, whether the plan will work even generally; and even if it does do so, the labor and machinery involved would be more than the caring for the swarms in the ordinary way. Just think of hitching the hives nearer together every few days to get them in a triangle, equally distant, and, after that, shifting brood-combs every ten or sixteen days into the hatching-box! Besides all this there is the expense of the connecting-tubes, and holes in the sides of the hives. Even if the plan should secure more honey, the cost per pound would be much more than by the old way. If our surmises are incorrect, we should be glad to be set right.]

FUN.

SENSIBLE SUGGESTIONS FROM MISS ANNA B. QUILLIN.

"Oh! I just *love* to do things to shock people—it is such *fun!* and if I don't do something to wake up this town before I leave it, I miss my guess."

So said a gay young girl of seventeen, bright, attractive, and full of life; a petted, only daughter, and an heiress in her own right, she held what would be considered by many an enviable position in the world.

"Why, Marta Belgrave! you don't mean to say you are going to engage in any new mischief?" said one young girl of the group, with very evident surprise, both in tone and manner.

"And why not?" was the reply of Marta, accompanied by a saucy toss of her head. "I do think this is the most 'dead and alive' old place—one never can have any fun here. Well, I am not going to 'give myself away,' but in a week or two I am going to have two of the jolliest girls you ever saw, to pay me a visit; and then, look out! if we don't shake up this old town, I'll be surprised."

"Well! I should think you had had enough of that sort of thing, Marta," was the reply.

"Oh, I am going to have some fun, and I don't care what people think of it. I am going away, and will be gone all winter, so it will not make any difference to me what they say about me, for I'll not be here to know it."

A number of girls out shopping had met; and as they paused for a few moments near the door of a store, this fragment of their conversation was overheard; and I wondered how many of our girls think as did Marta. Dear girls, do any of you think that it doesn't make any difference what people think or say of you? Marta has gained the unenviable reputation of being "rather wild," and "quite fast." Have you ever thought it didn't make any difference if people considered you in that light, and applied those terms to you? Do you think it doesn't make any difference if you engage in questionable "fun,"—flirt or correspond with strangers; play practical jokes; and do various mischievous things that may injure or annoy others? My dear girls, one little thoughtless act, which you may designate as "only fun," may so smirch your character that years of right living will not efface the stain. It may seem fun at the time; but, oh the bitter, bitter fruit it may yield to be eaten in the years that follow!

There is much to enjoy in life—many innocent pleasures, and it is right to enjoy them and have "good times;" but when there is any questionable fun on hand, count well the cost, and be not persuaded to enter into it, else the time may come—yes, it is almost certain to come—when regret will be your guest. As a certain poet has expressed it,

"the heart bleeds,
And pale regret comes weltering in tears."

Esau sold his birthright for a mess of pottage. Dear girls, do not run the risk of losing your good name for what is falsely termed *fun.* Do not be too familiar with boys or men, nor allow them to be so with you. Shun any one who would tempt you to do any thing your parents would not approve. And when friends give advice, and warn you of the pitfalls that may beset your pathway, take it kindly. Perhaps they may not express themselves in the kindest and best manner, but you should understand that they speak because they have your best interest at heart, and you should take it in the spirit in which it is intended. Do not think they are trying to cheat you out of any wholesome pleasures when they are only trying to save you from sorrow and suffering.

Have respect for the opinions of good people; and to gain their respect, and to deserve it, is no light matter—not a matter to be treated with indifference, but as something to be prized. Take this thought with you, and remember it always: A good name, a pure character, is the *most precious earthly possession* any one can have. Therefore, dear girls, guard yours well.

ANNA B. QUILLIN.

Ipava, Ill., October, 1892.

ROSES.

DR. MILLER TELLS WHAT HE KNOWS ABOUT THEM; THEIR PROPAGATION, ETC.

In a foot-note on page 774 I am "respectfully called upon to answer" some questions about roses. Mr. Editor, do you realize what a dangerous thing it would be to turn me loose on the pages of GLEANINGS with such a topic as "Roses"? Why! it's part of my creed, that God made the beautiful things of the world for us to enjoy; and I believe that, if the boys and girls of our homes were more generally encouraged to cultivate a taste for flowers, there would be less danger of their going astray in their search for pleasures.

Passionately fond of flowers, of late years my attention has been confined almost exclusively to roses. No other flower has so many admirers, and it is likely that, through all time, the rose will continue to be queen. How I wish, friend Root, you could be here when the roses are at their best! I am very sure you would become enthusiastic. Why! there hasn't been a day since roses began to bloom, with no bud to be seen. Shortly after the middle of May, Count d'Espresmenil offers its first opening buds with its brilliant green foliage; then another and another of the beauties opens out, varying from pure white through all the shades of pink and red to almost black, and, again, from the lightest tint to a substantial yellow; and when winter finally freezes up the bushes solid, it will be with here and there a bud or flower. Just now I have been out and counted some sixty buds in various stages of development. Some of these will open out; but as it is now the very last of October, some of them will never get to be more than buds, for in this cool weather they develop very slowly.

To answer Mrs. Fisher's question, grafting is very little used in this country in propagating roses. Budding is somewhat used, and layering occasionally, but the great majority of roses are raised from cuttings. Besides these four ways of increasing roses, there is a fifth, and it is the way mine are usually increased—that is, by buying. Except a few kinds that can not easily be raised from cuttings, you can buy small roses and have them sent by mail for about a dime each. Larger plants can be had for an increased price.

For outdoor culture you can have almost any kind of roses; but if you live in the North, the perpetuals, or hybrid remontants, are the ones to get for a number of years' growth. Let me caution you, however, that perpetuals are not perpetual in their blooming. They will give you a full crop in June, and an occasional bloom or set of blooms afterward. Roses don't bloom nearly as well on bushes as they do in catalogues.

But I'll tell you a trick worth knowing. As soon as the buds are big enough to be seen on my remontants, I carefully pick them all off by pinching with thumb and finger nails, and I try to keep them all picked off till about the time the common June or annual roses are done blooming. In spite of my vigilance, some of them will escape notice till they are so large that I have not the heart to pick them off, so that quite a showing will be left, giving me no trouble to cut two bushels on a Sunday when they are at their best, and from that to one or two vases throughout the season, to decorate the church. You see, if you allow them to bloom at their own sweet will they will exhaust their strength, giving you a mass of bloom when everybody has roses; but if you don't let them bloom when they want to, they'll keep at it afterward.

But it will not do pick off the buds of an annual bloomer, for they will not bloom out of their season. Moss roses (and nearly all mosses are annual) I cut back savagely in spring, cutting back half or two-thirds of the bush, and they give finer blooms, besides making them later. Mosses are among the very hardiest.

None of the hybrid remontants (please remember that "remontant" is the right name for what are quite commonly called "perpetuals") have any shade of yellow, and I doubt whether there ever will be a yellow remontant. If you want yellow roses outside of the June roses, you must have teas. Although the teas are more tender than the remontants, they are more abundant bloomers, and for house culture away ahead.

Let me tell you the secret of success with house roses, at least at our house. It is, simply to wash the plants at least once a week with soapsuds. Hold the plant over a dish-pan of hot soapsuds, and drench it thoroughly. Then dissolve hen manure (other will do) in water, and pour some of the liquid part on the soil in the pot every week or so.

You may enjoy rooting some cuttings. In February, March, or April, take a cutting two or three inches long, having on the end of it a bud half blown or more; cut off the bud, stick the cutting in the ground, and cover a tumbler over it.

There, I suppose that's all the room roses ought to have in GLEANINGS, and I haven't said half I wanted to. C. C. MILLER.

Marengo, Ill., Oct. 31.

A BEGINNER'S EXPERIENCE WITH ROBBING.

SOME OF HASTY'S EARLY EXPERIENCE.

For some time back E. E. Hasty has been writing an interesting series of articles in the *Bee-keepers' Review*, entitled "Comments on a Beginner's Day-Book." In the last article there is one paragraph that is so interesting and so well told that we place it before our readers. The first sentence, in fine print, is an extract, written years ago, from the day-book, following which is his comments:

"October 5th. Contracted the entrance to stop robbing."

The apiary previously to any purchase had been almost totally neglected for some time. Where swarming prevails as it does here, a percentage of the colonies in the yard will turn up queenless late in the season, get weak, infested with fertile workers, and, very likely, infested with larval bee-moths also. A carnival of robbing out these new colonies had been held in my brother's apiary, and he was too busy farming to interfere. I interfered on one occasion, I remember. A colony not far from my window, at which I heard a rumpus every morning before I was up, I shut up tight. I knew it was not good for bees to be shut up; but I pitied this colony so—attacked at untimely hours so many days in succession and holding out against it notwithstanding the disadvantage of having no regular bottom-board, that I fixed things and shut them in—surely be destroyed if I didn't, you know. Well, it turned out that they were not being robbed at all. They were simply a particularly enterprising nation of robbers; and the hot weather, with the additional heat which they made by trying to get out, melted the whole establishment down and drowned the pirates in their own stolen honey — a tolerably fair greenhorn's caper. After that you can imagine I let things alone; and robbing reached such a pitch that a good colony would be attacked and the ground covered with dead before the assailants would haul off. This seemed to be very shocking at the time; but at present I do not regard it in exactly the same light. The bees that got killed trying to rob in the fall are not young enough to last for next spring work, I reckon. It is better that they clean out every thing that can not make a royal fight, than that all these odds and ends of unseaworthy colonies should try the stormy Atlantic of a hard winter just as they are without keeper's care or comrade's cribbage. But of course I was just right in promptly putting each surviving colony in shape to defend itself. And Apiarius had better be the robber when robbing needs to be done.

THOSE IMPORTED QUEENS IN QUARANTINE.

W. C. FRAZIER'S EXPERIENCE.

"Quarantined" was one of the first things I saw in GLEANINGS of Oct. 15th. I had meant to write you that I had found a quarantine not especially conducive to the safe arrival of queens, but had neglected it. I received my September importation. It was detained in quarantine about 15 days. There was one queen more than half of them that came through alive. There was quite a number of orders awaiting them, which I filled on arrival. After all orders were filled I had four queens left, therefore I was obliged to discontinue the sale of them. These queens cost me about $2.00 more than I got for them; however, that cuts no figure, as such things have happened before.

There will be considerable hunting to find some one on whom to put the blame for killing the queens. Certain it is, the party in Italy who sent them is not to blame. That importing will be rather risky the coming season, I do not doubt; however, we can all go to breeding the golden bees and make our fortune.

My imported queens and their daughters are now quiet, clustered, and have ceased rearing brood. I have about five goldens. They have from two to three combs of brood. Whether this is a good thing at this season, I leave for practical bee-keepers to judge. It would not do for *me* to say. I am prejudiced; I am interested in other bees; I import a few dozen each year from Italy. But, seriously, I have had them for three years, most of the time. The time I did not have them was in the early spring, and they always all died in winter, except in the season of 1890–'91. I have never yet taken a pound of honey from them, and have nearly always had to feed them. I may be out of luck. May be I get my queens of the wrong breeder; but I have bought of several, and the result has been the same. In the South these bees may do very well; but they don't seem to do here.

Why can we not have a trial of these bees and the daughters of imported queens at some of our experiment stations, or by some of our large honey-producers, or both? There would be no use in having any thing but a friendly contest—no use betting, or donating any thing except the queens. If they are better honey-gatherers, or will make more points by the scale as adopted by the North American Association, then I wish to purchase queens of that strain. If the daughters of imported queens score more, then there can be found breeders who have them to sell.

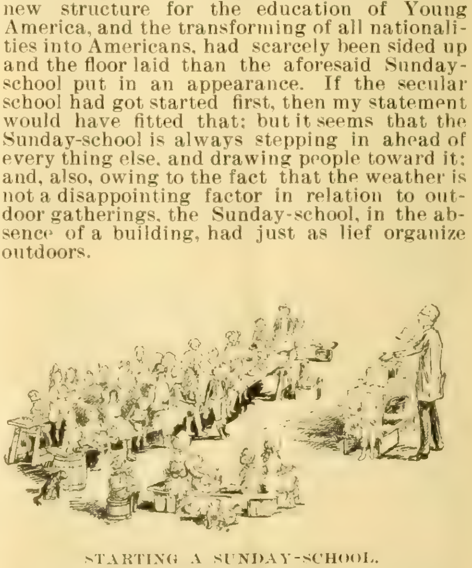
Atlantic, Ia., Oct. 22, 1892. W. C. FRAZIER.

[We should be very glad to see the imported Italians compared critically with our home-bred strains. We have so far found the imported to be the most uniform in markings and general characteristics. With us they are the gentlest; and while, perhaps, not the best honey-workers, they are the peers of any home stock. Some may disagree with us; but it should be remembered that we have opportunities for comparison equaled by no others.]

RAMBLE 72.

HOW SUNDAY-SCHOOLS ARE A DETRIMENT TO HONEY-PRODUCTION.

The above statement may sound somewhat strange; and, though made by the Rambler, who has always been in favor of and has sustained the good moral work of the Sunday-schools, it does not follow that he is opposed to Sunday-schools. On the contrary he hopes that this ramble will strengthen certain people to help along the moral forces. The fact, however, remains that both the secular schools and the Sunday-school have a potent influence in the above direction. Two miles northeast, and directly in front of the apiary managed by the Rambler, is the embryo town of Bloomington, on the S. P. R. R. When I first went out to the apiary, nearly a year ago, there were only a few scattering houses, or, I should say, cabins, in the brush. Irrigation has been extended to the place, and other houses begin to dot the plain. As soon as there were a few children seen playing around the cabin doors, the parents, in most cases, being good eastern people, bethought themselves of organizing schools; and though the children, all told, numbered less than 40, a schoolhouse 18x30—yes, 18x30 is what an eastern community would build for the accommodation of a much larger number of children—but here people seem to have larger ideas, and even the small towns have splendid school-buildings; and Bloomington, not to be outdone by her neighbors, built, not an 18x30, but a $3000 schoolhouse, two stories in height, several large rooms, a tower, a bell, flag-pole, and "old glory" proudly waving above. This new structure for the education of Young America, and the transforming of all nationalities into Americans, had scarcely been sided up and the floor laid than the aforesaid Sunday-school put in an appearance. If the secular school had got started first, then my statement would have fitted that; but it seems that the Sunday-school is always stepping in ahead of every thing else, and drawing people toward it; and, also, owing to the fact that the weather is not a disappointing factor in relation to outdoor gatherings, the Sunday-school, in the absence of a building, had just as lief organize outdoors.



STARTING A SUNDAY-SCHOOL.

In my Sunday-school experience in the East I have heard some well-meaning but purse-worshiping people advertise their disbelief in missionary work, and many a Sunday-school superintendent has raised a meager sum once a year to send to the home mission to aid in the establishment of Sunday-schools in the far West. Having witnessed the raising of funds on one side of the continent, it was with genuine pleasure that I witnessed the planting of the seed in this far western land. It happened in this way:

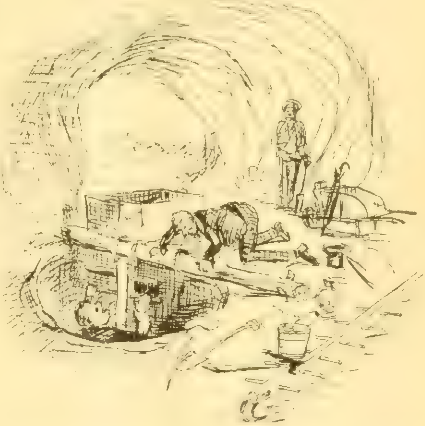
The new settlers desired a Sunday-school, and an agent of the home mission happened along. These missionaries are always handy. They can see what is going to be a new town a long way off, and are ready to put up with any inconvenience if they can only organize a Sunday-school. In this case the seats were boards mounted on saw-horses or nail-kegs, and the preacher's desk was a few boxes piled up. The legs of the urchins dangled from the seats that were too high for them, and some were so short that they didn't dangle at all, but their toes stuck straight up just over the edge of the board, while they seemed to take great interest in the proceedings. After the Sunday-school was organized the agent electrified the audience by stating that the Land and Water Co. had offered ten acres of land, selling price $100 per acre, and two building lots, to the first denomination who would build a church; and as his denomination was well represented in the settlement, there would be a church ready for occupancy before Christmas.

That's the go-ahead and hopeful way they do business in this country; and the teaching I wish to convey is, that money devoted to the home missionary work was well invested in this case, as I have no doubt it is in a great majority of cases; and the schools like this one became at once self-supporting. So, my friend, whatever your opinion may be in missionary work in general, do not fail to give liberal aid to the home mission of your respective denominations. It will aid to plant the standard of good morals in many an embryo town.

The next point is the cutting off of honey resources. In a previous ramble it was stated that the apiaries around this valley had, during the past poor season, produced many tons of honey. It was drawn mostly from the valley, which is well covered with all kinds of wild bushes, including sage, wild buckwheat, and honey-plants too numerous to mention. The establishment of Sunday-schools means the rapid digging up of honey-plants, and their places will be filled with cultivated fields. Of course, it is a pleasure to see the wild covering of the plain rolled up like a scroll, and see the reclaimed lands dotted with thrifty homes. The rapidity with which it is being done is shown by the fact that two large colonies of thrifty and steady Dunkards have taken up about 1200 acres of these lands, and will soon commence digging and improving, and probably the first thing will be the establishment of a Sunday-school, after their peculiar belief. A decline in honey production will follow, and it is hardly possible that fruit and alfalfa culture will ever take the place of the more prolific sage in the secretion of honey. Next in order will come the conflict between the fruit-men and the bees in the foot-hills; and I can safely say that the Sunday-school is not in this fight; for the man that poisons and burns bees is usually if not altogether outside of Sunday-school influence.

BEES AND FRUIT—THE REAL SITUATION.

Upon this point of the abuse of the rights of bee-keepers I have an array of facts that will harrow up the sympathetic feelings of every bee-keeper in the land. As a prelude to future articles, I wish to give a brief account of a visit to Glendale and the home of Mr. Woodbury. While in Los Angeles in September, and while having a friendly chat with Mr. Brodbeck, who should run against us but our old friend and veteran bee-keeper Mr. Corey, of Santa Paula! Having a few hours to be profitably spent, Mr. B. advised us to run out to Glendale and interrupt the even tenor of Mr. Woodbury's ways; and about 10 A. M. found us safely on the ground; but instead of finding Mr. W. walking around in a civilized way, we found him under ground—or, in other words, in that tunnel previously mentioned in GLEANINGS. The tunnel had progressed inward, and then downward, like a well; and down there in the water was Mr. Woodbury. Peering up he remarked, "Well, what can I do for you?" But before I could tell him I wanted a job at tunneling, Mr. Corey thrust his head over the opening. It was recognized, and, "Oh, ho! that's you!" came from the well; and when Mr. C. said the other head was the Rambler's, there was another exclamation, "Ah, ha!" and a great kicking and splashing of water followed as he swung himself up to his ladder, which was secured at the top, and lacked several feet of reaching the bottom.


HOW MR. WOODBURY GETS OUT OF HIS TUNNEL.

When upon the surface we found Mr. W. a very pleasant bee-man, and, of course, the apiary of about 90 colonies neatly arranged on terraces was looked at and discussed. Mr. W. is not only enthusiastic in bee-management, but also in fruit culture, and has a good showing of figs, oranges, and small fruits. The raspberries were bearing a second crop, and we picked several fine clusters; and although Mr. W. cultivates raspberries on his ranch, without injury from the bees, a neighbor was irritating him because the bees were destroying *his* raspberries, and was threatening all sorts of vengeance against them. Mr. W.'s bees were the only ones in sight, and, of course, came in for their share of all of the blame. The reason why Mr. W.'s raspberries were uninjured in the immediate vicinity of the bees was from the fact that the berries were picked before they became overripe, while the neighbor allowed his berries to get beyond that period, and were really worthless for shipping. Still, Mr. W. offered to pay damages, and was really thinking of selling his bees, which were a source of considerable revenue to him. Mr. Corey and I strongly advised him to stand by his rights of priority, for he had been on his ranch several years, and was among the first settlers. We also advised him to join the Union and let his neighbor run against something that might astonish him.

When we came away we felt as though we had cheered up our friend, and we hope he will remain cheered up.

When we departed we called upon a fruit-drying concern; and from the foreman, who is also interested in bees, we learned that, in drying peaches or any other fruit that is fumigated with sulphur, the bees seldom if ever touch it, while the yellow wasps will continue their depredations. Our foreman threw in the remark, that many fruit-men didn't know the difference between wasps and bees, and were always ready to curse them all under one head, and put all the blame on the apiary that might be in sight.

We stopped at the fruit-drying camp for dinner; and after seeing the chief cook scour the knives and forks by jabbing them down into the ground a few times, we returned to Los Angeles, feeling well repaid for our journey, or, at least, that feeling was enjoyed by the

RAMBLER.

THE WHEEL OF 1892.

WHAT ITS PROBABLE EFFECT WILL BE, PHYSICALLY, FINANCIALLY, AND MORALLY.

Lest some of the friends may complain that I am taking up too much space for the wheel business, I wish to say that we have added eight extra pages to this issue, in order to make up for this long article that seems to me should come in right here, if we expect to keep up fully with the times.

In taking up this matter, as I feel moved to take it up, the first thing that confronts me is the fact that a great part of our people have but little money to spend for wheels or any thing else in that line. Bee-keepers, as a rule, have had another poor season, and farmers generally, as well as market-gardeners, have had a rather hard time. In consequence of unfavorable weather, the crops have been poor and labor has been high. There seems to be a little discrepancy here; and, by the way, do not these "calamity" people lose sight of this very discrepancy? If one of the farmer's troubles is, that labor is so high that he can not afford to hire men, then surely the laborers must be the gainers if he is the loser. These men, therefore, who work for high wages are the ones who can afford to buy the wheels; and I believe it is the class generally who work for wages who are the owners of wheels. Notwithstanding this, however, a great amount of money is being invested in wheels. As I write, the wheel of 1892 is a craze. Perhaps I should apologize for using the word "wheel" instead of saying "Safety bicycle;" but I feel satisfied that any word that is on the tongue of so many people so constantly should be a short one. Most of you remember when we used to say "telegraphic dispatch." Go-ahead Young America, however, could not tolerate two such long clumsy words, and pretty soon "telegram" came of itself. No one stopped to inquire whether it was in the dictionary or not. By and by, even "telegram" was too long and hard to remember, and now, at least in business circles, the plain simple term "wire" has taken its place. If a man is going rapidly on a moving train, he can call to his friend, "Wire me at my expense;" and there are lots of such contingencies in every busy man's life, where he has but a moment to make his wishes understood. A hired man is going in one direction to the field, and another is going in another direction. Before they are out of sight the boss wants to make suggestions and give orders to both of them; therefore we want plain simple words that everybody may understand. For this reason I say "wheel." A few days ago a traveling man, a stranger, left a pair of valuable gloves on our lunch counter. One of the waiters brought them to me just as his carriage was disappearing in the distance, drawn by a couple of smart ponies. I stood with the gloves in my hand, my mouth wide open, waiting to decide what to do. Somebody sang out, "Jump on your wheel!" Almost before the words were out of his mouth I was pushing on the pedals. I kept him in sight enough so I could see him turn the corner, then the team started rapidly down a decline. By this time I was just flying. I could not make him hear, so I outstripped his ponies, and ran in front of him while he was going down a pretty steep hill at a pretty good rate. He was a good deal surprised when I brought his team to a standstill, and I was too much out of breath to do any thing more than extend to him his gloves. Now, there are thousands of times in life when the wheel will help us out of such emergencies. It afforded me no little gratification, I assure you, to discover that I could, when circumstances make it necessary, "run faster than a horse;" and I sometimes tell the friends, after I have made a long trip, that I can not only run away from a horse, but that I can almost *eat* like one. If the latter expression is too slangy, you can skip that part of my talk.

So much by way of introduction. It illustrates, however, that the wheel is destined to be something *more* than a craze. The results secured by it are too substantial and important to be a craze and nothing more. Last week Mr. Calvert wanted to attend a church conference, nine miles distant. He did not wish to be out of the office any longer than necessary. He made the distance on his wheel in just 45 minutes, notwithstanding he weighs 174 lbs., and a sprained ankle has been troubling him for two years past, making it very difficult for him to walk even *half* a mile. In fact, physicians have been telling him for a few months back, that, if he keeps on his feet as he has been doing, he must submit to a painful surgical operation. Well, his sprain has improved since he began riding the wheel instead of going on foot. The philosophy of it seems to be in the fact that the weight of the body is supported on the wheels. The wheels have pneumatic tires, and the ball bearings have been so perfected that the wheels probably move with less friction than any thing the world ever knew of until within recent times. As a piece of mechanism this modern wheel is the achievement of the present age. You may say a horse and buggy will do at least pretty nearly as well; but it takes a good deal of time to hitch up a horse; and it is rather expensive to keep one so that you may have it ready at hand to be hitched up. While the wheel costs almost as much (that is, it does just now) as a moderate-priced horse and buggy, it requires no hitching up, no feed, and there can not very well be any cruelty to animals to attach to it, even if forgotten and neglected.

Probably one of the great results brought about by the wheel will be that one may live five or ten miles out of the city, and easily be on hand during business hours, and that, too, without any expense worth mentioning. Of course, we must have better roads than we find in country districts or country towns, if we expect to use the wheel in all kinds of weather. And this wheel business has already awakened our people to the fact that one of the greatest wastes of the present time is in permitting our roads to be in such shameful condition as they are during a great part of the year. Ordinary country roads, however, answer very well for the wheel when it is not muddy. I have myself made 45½ miles in a day, without any fatigue worth mentioning. Ernest, as you know, easily makes 60 or 75; and experts, under favorable circumstances, make not only 100 miles, but 200 and even more have been made in special cases. The wheel will enable us to save money in many ways. On page 676 I told you about my nice little field of buckwheat that did not get sown until July 30th. It was cut in just 60 days from the time of sowing. When the crop was very fairly cured, and ready to thrash, I noticed the barometer was falling rapidly, indicating a storm. It was Saturday afternoon. Four miles away, somebody told me, they were thrashing buckwheat that very day. By the aid of my wheel I was on the spot in twenty or thirty minutes. They told me that, if my load of buckwheat could be run up by the machine by two o'clock, they would thrash it for me and I could take it right back home. The buckwheat, grain, and straw, were driven into the tool-shed just before the rain commenced falling, and I secured at the rate of over 50 bushels of nice grain per acre. The next day after the rain, the ground was harrowed up with the cut-away harrow, and rye took the place of the buckwheat. Somebody has called this a fast age. Well, the wheel will help us to make it a fast age, and it will help us to secure our property speedily from storms and other vicissitudes.

Outdoor riding and outdoor buggy-riding and horseback-riding have been recommended for ages for the health; and very much has been accomplished in this way. Outdoor air is unquestionably far ahead of any system of ventilation for rooms warmed by artificial heat; and horseback-riding has given much better results than buggy-riding because of the thorough shaking up and the exercise to a certain extent given to the rider. But horseback-riding is not for a moment to be compared to riding a wheel. To get the best results from outdoor air, the rider needs to take the *place* of the horse, and furnish the motive power. You may say that many patients are unable to stand such *violent* exercise. But it need not be violent. On a smooth level road it is much easier than walking—that is, if you ride slowly. Of course, there is a constant temptation to ride fast when you can do so; but for some strange reason that I can hardly explain, I have never yet heard of anybody who suffered because he rode too fast or too far. He may have been pretty well used up for the time being; but sleep, food, and drink, restore one so quickly that it seems almost too good to be true. I have been told there is only one disease for which the wheel is not to be advised, and that is heart disease.

And now a word in regard to the moral results that may be expected. The following, which we clip from the *Bicycling World* of Oct. 7, has been going the rounds:

> Says the *Christian Secretary*, of Hartford: "The great enemy of a proper observance of the Sabbath is not the saloon, great as that is: it is the bicycle. It is our opinion, that the bicycle causes more young men to neglect church and Sunday-school than almost any thing else."

I am very well aware that there *is* a great deal of Sunday riding. A young friend of mine rode 127 miles in one day, and that without feeling it, so he said; and then added, in a little lower tone, that *that* day was Sunday. I felt, of course, very sad to hear him say it, and I have felt sad to notice, through the *Bicycling World*, accounts of century clubs, or clubs who have made a hundred-mile ride in a day, and see the remark that so many of these rides were made on Sunday. It is a well-known fact, that livery stables do more business on Sunday than on any other day in the week. And I presume this is true north, south, east, and west. It is wrong, and it ought not to be; and their patrons, as a matter of course, are, very few of them, Christian people. Ministers do, perhaps, to some extent, patronize livery stables to reach their appointments; and in cases of sickness it is unquestionably right to go to a livery stable; for even the Master himself said, "It is lawful to do well on the Sabbath." A great part of the world will persist in regarding Sunday as a holiday; and to have a good time, they, of course, want to ride out into the country or attend the various gatherings or excursions that of late have been getting to be so much of a custom to be held on Sunday. Now, right here the wheel comes in. It takes the place, to a certain extent, of horse and buggy. If somebody is in pursuit of enjoyment simply, and his sole motive is to have a good time, without any regard to the Sunday question, he will, of course, learn to ride the wheel. He very soon discovers that, if he wants to have an enjoyable time, nothing else in this world can so add or contribute to the enjoyment as riding on the wheel. If there is to be a *dinner*, and you wish to enjoy it, just ride an hour or two before eating. The faster you ride, the more you will enjoy your dinner. If there is to be sight-seeing, or if you are going to visit a circle of friends or boon companions, nothing that has ever been discovered will make you so bright and good-natured as a good long ride on the wheel. Yes, we may go further: If a minister wants to preach a good sermon, or if a teacher wants to do justice to his classes, nothing else in the wide world will so wake him up and stimulate him to do his very level best, as this new sort of muscular exercise, to be taken in the open air. May be the *Christian Secretary* did not mean to compare the bicycle, in point of morals, with the saloon; and perhaps the editor had no thought of saying that the wheel bids fair to be as *demoralizing* in its tendency as the saloon; but, dear Christian friend, just think of that expression as it stands. The saloon no doubt calls men, old and young, from our churches; but, by the way, is it not a mighty step, a mighty *stride*, for instance, from church-going to saloon-going? It hardly seems as if such a step as that is made all at once. My experience teaches me that it comes more about in this way: The church-goer begins to find fault with the minister and his preaching; then he goes to picking at Christians, and claims they are not what they ought to be. Pretty soon he says he can stay at home and read, and get more good than he can by going to church. Then he becomes tired of staying indoors, and feels that he would like to cultivate the social element. He strays over to the neighbor's, then gets out on to the streets, and *finally* patronizes the saloon. Perhaps some of our young men are debating whether they shall attend church, as conscientious and good people direct, or whether they shall go where they can have most fun for the time being. In this case it may be that the church and saloon both hold out inducements in one sense of the word. Suppose, however, this new craze, the wheel, comes in right here. He goes neither to the church nor to the saloon. He goes off into the country, on a wheel-ride. I do not say that this is the thing to do, mind you, for I feel sad to see any young man go out on his wheel on Sunday because he can not afford to take the time week days. But let us go back to the question. Where would you rather have a boy of yours found on Sunday—in the saloon or off in the country, on a wheel? Of course you would rather have him at church and Sunday-school than at either of the places. But suppose it is either the wheel or the saloon. Is there any one who can for a moment think of calling *one* as good as the *other!* If he goes to the saloon he has already braved conscience and public opinion. He knows, without being told, that he is on the road to ruin. He voluntarily seeks the society of the lowest and most depraved? But is it so with the wheel? A great part of wheel-riding is done in no company at all; in fact, it is hard work to keep side by side with any one. If you get too close you are liable to have a collision; and when any part of your wheel, your body, or even your clothing, touches any thing, you lose your center of gravity and down you go.[*] The saloon is social in its tendencies. For reasons given, the wheel can never be very social—that is, while you are riding. The saloon favors late hours: the wheel emphatically directs that all riding be done by daylight. It is dangerous to ride after dark, especially in the country. The wheel takes you out into the free open air, usually into the country, amid the trees and green fields, and God's clear sky. The surroundings are calculated to ennoble, and this wonderful new exhilaration from vehement exercise stimulates one's *best* thoughts and feelings. It is the greatest encouragement I ever felt toward godliness. In fact, it leads one to look up to God with gratitude and thanksgiving. The atmosphere of the saloon, physically and morally, tends to *kill* spirituality. I believe the tendency of the wheel is to encourage a healthy, wholesome spirituality. I am sorry that our boys are riding so much on Sunday; but if the wheel is going to be the means of drawing our boys out of the saloons on Sunday, I feel that it is inducing them to make a tremendous step in a *better* direction. If we can get our boys into the open air, I think our chances are ever so much better for saving them.[†] I have wondered what our young men have said when they met this paragraph in the *Bicycling World*. I am inclined to think they have said to themselves, "Why, that Christian Secretary is an old mossback. He has stayed cooped up in his office so long that he does not even know what is going on in this great country of ours." And by the way, dear friends, I do fear that a good many of us who are professing Christians are in great danger of meriting the title of "mossback." When the Endeavor Society was first started, the biggest part of our ministers, and perhaps the greater part of our old deacons, frowned on the new venture, and I myself was guilty of suggesting that we had organizations and societies enough. We turned a cold shoulder toward it, and sermons were delivered in some pulpits against it. But the movement was of *God's* appointment, and not of man's, and it pushed through all opposition, and it astonished the world by showing what it could do and what it is doing. Now, I believe the wheel too is of God—a wonderful and precious gift to the present century. Why, just think of it! almost everybody must do miles and miles of walking. Business men spend a great part of their *lives* in walking. They wear out their boots and wear out their bodies in slowly tramping here and there. A man can walk four miles an hour; and even four miles an hour is very fatiguing to many people. With the wheel, eight miles an hour is a slow gait. With fair roads, almost any one can make twelve, and the boys often make sixteen without a bit of trouble. Ernest rode five miles in sixteen minutes, and I presume he could have gone five miles more in the next sixteen, without a bit of trouble. This was on a smooth race-track, however; but the road was not a bit better than most of our country roads *should* be, and, I verily believe, *will* be. Just think of it! when you are in a hurry, and it is desirable for you to see a good many people in a short time, with the wheel you can almost annihilate distance. Best of all, when you come to talk to somebody on business you are in a good frame of mind. In fact, it is a daily surprise to me to find that there is an invention right here before us that will make a sour and crabbed man good-natured. Yes, I have purposely tried the experiment of getting on the wheel just before supper-time, when I felt weak and nervous, and fidgety and cross. I have tried it when I felt sure that nothing in the world could help me. In half an hour I was strong, well, bright, happy, and cheerful, and pleasant to my wife and children. May be this is making a confession. Can't help it; it is too good (not too good to be true) to keep to myself. Our boy Huber, only nine years old, takes the same wheel that I ride, and runs all over the country with it, even though he can not touch the pedals with his feet much more than half the way round. After school he gives us a series of gymnastic performances out in the street between the house and factory. The wheel stands still for him—at least, it looks as if it did. While he climbs on, it looks as if he were going up a series of steps upstairs. Then he gets first on one side and then on another; puts his feet over the handle-bars, side-saddle fashion, stands up on the pedals without sitting on the seat at all, and yet I can not remember that we ever saw him get a fall. When suppertime comes he is rosy and happy from the exercise that it gives him. A few days ago a man was wanted who was about a mile and a half away. It was over some pretty long steep hills, but Huber thought he could master them. He did the errand and was back so soon that I scarcely missed him from his play. It is the nicest and most wholesome *sport* in the world for children, and there is real *utility* in the sport. It brings all mankind closer together. At our prayer-meeting last week some of the old people asked what should be done with restless boys who want exercise, and who want to go out into the country on Sunday. I ventured the suggestion that the boys should be permitted to get on their wheels and go to a Sunday-school at three o'clock in the afternoon, just two miles away. I said that, if the boys would take a seat in one of the classes, and listen to the instruction, and, as soon as school is out, ride straight home, I should not fear that such an amount of Sunday riding, and for such a purpose, would result in any thing bad.

A little way back I spoke of a race-track where our boys do a great deal of riding. It is true, we have wheel-racing like horse-racing;

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[*] It is said that a very polite wheel rider once simply brushed a lady's arm while he was riding by the side of a canal. It threw him out of balance, and down he went into the water, and under it. As soon as he could get his head above the liquid he blubbered out an apology for his rudeness in having ridden so near her.

[†] Once more: It is just beginning to be discovered that experts on the wheel must not use either strong drink nor tobacco. The man who uses tobacco will surely fall behind; and I believe that quite a few of those who ride wheels have abandoned tobacco on this account. Tobacco strikes a sure and deadly blow at the best muscular development. May the Lord be praised that we are just beginning to find this out. I have before spoken of the fact that those who make great rides on the wheel choose milk in place of alcoholic drinks or even tea and coffee.

but so far the League of American Wheelmen have so vehemently opposed any betting or gambling that no cash prizes have as yet been allowed that is, among the league. The man or boy is expelled who is found guilty of betting or gambling, or even running for a cash prize. The prizes are, all of them, something besides cash, and the winner is put under bonds not to sell his prizes. Some of them have already a dozen wheels; and the question is, what they are to do with them. I think our league should be commended and encouraged in its steady and persistent stand against gambling, or running for money prizes.

Now just a word in regard to the expense of wheels. When sewing-machines first came around, they cost from $75 to $100—that is, a good one did. In course of time, however, machines equally good, if not the same thing, were sold for $12 and $15. I think there is no question but that the same thing will be true in regard to wheels. At the present time, however, there seems to be difficulty in making a really substantial wheel for much less than from $125 to $150. Manufacturers give, as an excuse for these high prices, that they are obliged to warrant wheels, no matter how much they are banged and slammed about by beginners. My own wheel has received knocks already that it would seem the best of iron or steel could scarcely be expected to endure. There have been some trifling breaks, but in every case a new piece has come promptly, without charge, to replace the broken one. Now, then, instead of condemning the modern wheel, and calling it a piece of the Devil's machinery, shall we not take it as a gift of God, and strive by every means in our power to have it used in a way that may glorify his holy name?

Before closing, permit me to say a word to those who meet wheels on the roads, and feel it to be a nuisance to turn aside a little to give them room. A good Christian man of my acquaintance seemed a little surprised a few days ago because I expected him to give me a part of the road because the hubs were so rough outside of the beaten track that no wheel could be expected to go over them. He said, as I passed them, "Why! has a body got to turn out of the road for *them* things?" I confess that it may seem that it is asking too much to expect a big heavy team to turn out of the beaten track just to let a wheel go by. But, dear friends, please remember that, even though a wheel can outstrip a horse, the rider is not expected to possess the brute *strength* of a horse. It is a *man's* muscles against a *horse's* muscles. Which is the best able to get out of the beaten track where it is a little rough? I think I might have turned out and given my friend the whole road; but it would have required immense strength on my part, and have given me a pretty thorough jolting besides. Where the sides are tolerably smooth, I prefer to turn out; and where I meet a team with a great load I often dismount rather than put them to much trouble. Ordinary Christian courtesy should dictate what is proper. In many towns wheels have been banished from the sidewalk by ordinance. Crowding us out of the public highway *also* would be a little unkind. The law, I believe, has pronounced the wheel a vehicle; and every vehicle of whatever description is entitled by law to half of the road. Of course, we meet coarse, greedy, unfeeling people. Our own State of Ohio is guilty of having a man of this latter class, who would not give a lady rider part of the road; and when he had crowded her off to where the road was rough, he drove his wagon over her wheel, after she had fallen in trying to turn out for him. After that he refused to permit her wheel to be placed on his load till she could get to the nearest town. The league took the matter up, however, and I presume our stupid friend has found out ere this that wheel*women*, at least, have rights.

Later.—Carrying packages and even burdens on the wheel is another matter that is almost undeveloped as yet. My attention was first called to it when I saw a young man not twenty years old take a girl who weighs 80 or 90 pounds, letting her stand with her feet on the coasting-rests, and leaning back on the handle-bar. He carried her around without any apparent effort for some little time. Some of you may suggest that it is easier to carry a nice-looking girl weighing 80 or 90 pounds than it is a package of merchandise that weighs only 30 or 40. This may be true; but I have been having fun lately in carrying our mail to the postoffice. We are half a mile from the office, and it is necessary to make five trips during each 24 hours. We used to hire a small boy, and sometimes it took him an hour to go to the postoffice with his wheelbarrow, do a few errands, and return. Before I knew it one of our older boys was carrying and bringing the mails on his wheel. One day I spoke almost reprovingly:

"Why, Frank, you have not got your mail."

"Oh! yes, I have. I got back some time ago." But when I looked questioningly he answered, "Why, I go every day now on my wheel, and yesterday it took me only eight minutes by the watch."

Well, I saw the point. I borrowed of Ernest his package-carrier; and by strapping on a half-bushel basket I now carry 30 or 40 lbs. without a bit of trouble. A wheelbarrow is not to be *compared* with it for ease of transportation; and when you talk about comparing the wheelbarrow to a wheel in speed — whew! Now, if the burdens can be supported low down, say by the coasting-rests, or still further down, near the ground, the difficulty of keeping the balance would be very much reduced; and I feel certain that there is no way in the world whereby the strength of a man can carry 100 or even 200 pounds, to be at all compared with the ball bearings and the pneumatic rubber tire. In the town of Oberlin I saw the mail-carriers delivering and gathering the mail on wheels. I do not know how far this fashion has been adopted; but I do know that it is going to be one of the shortest cuts in business the world has ever discovered; and what has been heretofore painful drudgery may be a delightful pastime. This paragraph is dictated after having carried a large package to the postoffice; a message to a railroad depot beyond; a purchase made at the drugstore; a deposit made at the bank; an order delivered at the meat-market; a bill for repairs paid at the wagonshop; another bill for repairs, in another part of the town. These commissions took me in different directions all together a couple of miles, and yet I was back in about 25 minutes, and I did not make any effort to hustle around either, and came home feeling refreshed and glad. One of the most difficult posts to fill in all our establishment has been that of the messenger boy; and I never expected to see the time when I could do it myself *profitably*, and at the same time have *fun* while doing it.

I have all my life, as you may know, been fond of "rushing things." I do not wish to be hard on the friends around me, neither do I like to be hard on horses when I am driving them; but there are many times in my life when every thing and everybody seems too slow for my mood. A great deal is to be accomplished in a certain time. I want to be in a dozen places at once. Now, the wheel comes in right here, and fills a "long-felt want." You can hardly imagine what a relief it is to my feelings to know that I can push the wheel to my heart's content. If I want to make a certain point or a certain place, there is nothing to hinder, and no wrong done to anybody, providing I do not run over them, even if I do just "make the gravel fly" in fetching a combination of events around to a certain climax; therefore you can readily understand why I say so often to myself, "May God be praised for this new and precious gift."

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

DR. MILLER "RILED."

The *British Bee Journal* has just "riled" me by one of its proceedings; and as my anger would cool off before it crossed the ocean I'll vent my spite on GLEANINGS. I refer to the bad practice of printing articles with the name of the writer at the end instead of the beginning. In a late number of the *B. B. J.* an article contains a statement somewhat startling in character; but whether it shall be received with implicit faith, or be considered a mere whim, depends something upon the reputation of the writer. So I looked for the end of the article, with the question, "Who is the writer?" The only reply I got was the very unsatisfactory one, "To be continued."

The succeeding number is now before me. Turning somewhat eagerly its pages, I find the continuation of the article, only to find again in the place for the signature, "To be continued." How long this state of affairs is "to be continued" I do not know; but in the meantime all the readers who are interested in the article are "to be continued" in a state of mind. Of course, no fault can be found if we admit that it is the right thing to have the writer's name given at the end. But isn't it a bad plan in general to put the name of the writer at the end? When you read an article in a bee-journal, don't you always look first to see who is the writer? And if the name of the writer is the first thing to be *read*, why shouldn't it be the first thing *printed?* Is there any good reason for having it at the end? "Takes less room at the end?" Why, you can print it in just as small type at the beginning as the end, and surely it will take no more room one place than the other. "Yes, but it doesn't look so well." Now, look here, Mr. Printer; are the comfort and convenience of your thousands of readers to give way for your notions of typographical appearance? Out upon you!

Now, it may be that, if GLEANINGS would take up this matter, and try to show the guilty parties the error of their ways, at least some of them might be induced to amend.

Marengo, Ill. C. C. MILLER.

[Well, now, doctor, we (that's the junior editor and the printers) are glad that you are riled, not at our esteemed cotemporary the *British Bee Journal*, but at GLEANINGS, for it is easy to see you intended to give us a clip over the shoulders of the *B. B. J.* Our custom has been to put the name of the writer at the end of the article. *We* have wanted it at the beginning; but A. I. R. doesn't take kindly to it. May be if you will keep your wrath nursed up we shall be able to make the change. Joking aside, we will put the signature wherever our readers desire it. In renewing, let us know your preference.]

NOVICE OF OLD—AN OPEN LETTER.

Dear Novice:—Now a novice no more, it gives me much pleasure to grasp your hand and say with what zest I read your productions in the "Old Reliable," when it was conducted by the lamented Wagner. Your "trials, troubles, and tribulations" were amusing when so humorously described over the *nom de plume* of "Novice;" but I doubt that they were the source of much satisfaction to you, although I judge you endured them very philosophically, even if you were but a "novice." I wish you would, when the spirit moves you, give us the history of your early apiarian experiences, because it would not only "renew the youth" of many who, like myself, are in the "sear and yellow leaf," but would convey much instruction to the "tyro" in apiculture. Permit me to suggest a title for the (forthcoming?) work; viz., "Reminiscences in Bee-keeping." After you ceased writing for the *A. B. J.*, I lost track of you until lately, in the August number of the *Progressive Bee-keeper*, I learned that you are still alive and making things "hum;" in fact, there is something very *e(a)rnest* in your business methods. So you would like to know who the "Assistant Editor" of our *Canadian Bee Journal* is? Well, Bro. Novice, if you will favor the apiarian department of our Industrial Exhibition (which is held annually in Toronto during September) with your presence, I doubt not you will be most cordially welcomed and lionized (you know we Britishers are fond of lions) by the aforesaid "Assistant Editor."

I intended, when I began this "screed," to tell a snake-story; but if I do not go to bed very shortly I shall probably dream of snakes which will require the services of a doctor to *tinker* at the internal economy of OCTOGENARIAN.

Amigari, Ont., Oct. 24.

NINE OR TEN COMBS IN A TEN-FRAME HIVE—WHICH?

Is it of any benefit, to 40 to 50 colonies of bees that are kept for extracting, to have in the upper case or extracting-super nine frames instead of ten? Is it not more convenient for extracting? or will it bother again the same time? We are using the Langstroth 10-frame hive, 14¼ inches inside width. JACOB WAGNER.

Amana, Ia., Oct. 17.

[The only reason for using 9 frames instead of 10 in a ten-frame hive is because some bee-keepers seem to think there is an advantage in having the frames a little wider spaced—that is, 1½ instead of 1⅜ from center to center. If the apiarist is not careful in spacing, the combs will in time be bulged wider and wider; and the result is, he is obliged to take out one of the combs so he can get in the nine; but with those who are beginning to use self-spacing frames, crooked and bulged combs will soon be things of the past. In our own experience, we get more brood from 1⅜-inch spacing than from 1½; we also get truer and better combs. This matter was fully discussed on page 491, 1890. Perhaps we ought to say this: For extracting, there may be an advantage in having 9 combs in a ten-frame super, because the nine will hold the honey of the ten, and the nine can be uncapped in a little less time than the ten. But we question somewhat whether the honey is as nicely ripened in *deep* cells as in the *shallow*.]

HOW TO GET POLLEN OUT OF THE COMBS.

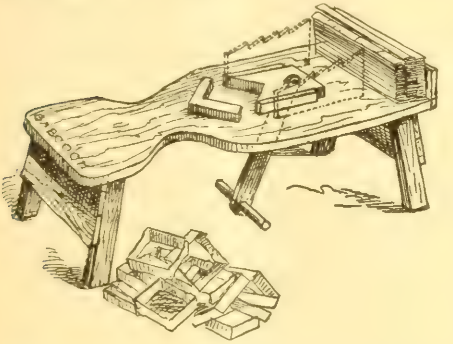
After extracting the honey from the brood-frames or extracting-frames, is there any known means or way that the pollen can be taken from the cells without injury to the combs? I believe it has been so stated by some one I do not remember just where), that in combs stored away without honey in them, the pollen becomes so dry that the bees will not use it. If that be the case, it would be to the detriment of the bee-keeper.

Gunn City, Mo. JAS. A. ADAMS.

[The best use you can make of the pollen-stored combs is to hold them over till next spring, then give them to the bees to stimulate brood-rearing. It is a difficult matter to get pollen out of the combs artificially. It has been recommended to soak such combs in water for a time and then, with a stream from a hydrant or fire-pump, wash out the pollen. We have never tried it but the plan is said to work.]

BABCOCK'S SECTION-PRESS.

I inclose herewith a pencil sketch of a section-press of my invention. It is not patented, and can be built for 50 cts. It is a free gift to all bee-keepers. Please pass it around.



The dotted lines are a rack to hold the open sections. Prepare a bundle and place them at your right. Put them on the rack, a handful at a time. H. C. BABCOCK.

Lemoore, Cal., May 6.

THE ALL-WOOD FRAMES; SELLING POOR QUEENS.

I am thoroughly converted to the all-wood old-style frame, but I am not prepared to accept the extra wide and thick top-bars and the Hoffman frame. I want the old-style all-wood frames, but I want the top-bars an even inch wide, and the same thickness as now, ⅜. That width will give us a ⅜ bee-space between the frames when combs are spaced 1⅜ from center to center. I hope Mr. Root can be induced to make this change, and make it a standard for all-wood old-style frames, end-bars one inch, bottom-bars ⅞, the same as now.

I have no sympathy with the practice of selling a poor quality of queens to other people. Selling to others stock that we know to be worthless is very poor morals. I favor breeding to the highest possible standard. Some bees are good comb-builders, others are not. I once bought a high-priced select tested queen. She was all she was represented to be; but her bees would never build an ounce of comb in the upper story. They would swarm as soon as the brood-chamber was full. Her daughters and granddaughters were the same. Other bees in the same yard, with the same treatment, built surplus comb right along with but little or no swarming; therefore I have adopted a rule, that any queen that swarms out from under empty sections meets a violent death as soon as I can replace her. The same rule should apply to queens that will not winter a colony that went into winter in good condition. I have no sympathy for kind-hearted people doctoring up a sick colony in the spring, to save a worthless queen. Some people seem to regard a queen as so much cash. So she is, if she is a good one; but if worthless, she is no better than any other bee; in fact, she is worse, for she will raise a lot of drones to mate with and spoil some good queen. Good wintering should be a strong point in selecting breeding-queens.

In my yard, some colonies will pile in the burr-combs, while others will leave the frames comparatively clean. If all other conditions and qualifications are equal, I supersede the burr-comb queens; the same way with queens whose bees are vicious. They are superseded as soon as it can be done without loss. I am one who thinks a careful selection, from generation to generation, of the bee-life, will make great improvement in the stock. Do not sell inferior queens. Kill them.

PHILO S. DILWORTH.

Ingram, Pa., Nov. 3, 1892.

SLUMGUM FROM THE SOLAR WAX-EXTRACTOR; W. H. SOMERFORD SAYS THERE IS VALUABLE WAX IN IT.

Friend E. R. Root:—After carefully reading H. R. Boardman's report on page 771, Oct. 15, in regard to the slumgum, or residue, from a solar wax-extractor having no wax left in it, I will back your assertion by giving my experience concerning solar wax-extractors, for I used a large one in Cuba, where the sun does shine even hotter than here. The size of it was 26x44 in.; and for melting cappings it was good enough; but when it came to melting up old foul-brood combs, or any other comb that had been used in the brood-chamber, it was not what I wanted, for it would always leave from 25 to 40 per cent of the wax in the slumgum, or so much that a hired man did all, or nearly all, of his cooking with it while it was in constant use. And some piles of the same slumgum from the solar extractor had been thrown out, and had been in the weather for perhaps as long as three or four years, until it had been burrowed through by ants, and soaked by rain, and heated by sunshine until the time I took it up and cooked it in a 300-gallon brass sugar-kettle; and, to be sure, I secured a fine lot of very good dark wax that the solar extractor had lost in slumgum. In fact, I consider, after using a 300-gallon brass kettle to render over a ton of wax in, that any solar extractor is very wasteful, except in cappings; for experience has taught me that, to get wax out of old combs, they must be soaked thoroughly, then boiled, and stirred and skimmed of all floating wax, then stirred and left to simmer down and cool. When cool, and soaked on top, take the cake out and set it up edgewise; then with a sharp hatchet or ax peel off or divide the cake as near the top as you find little round shotlike lumps of wax. When divided, break up, resoak, and again boil the half containing wax, with *acid;* and what is lost I'll guarantee will not be sufficient to run a thrasher-boiler, as Mr. Boardman did, in place of coal.

W. W. SOMERFORD.

Navasota, Texas, Oct. 23.

TREGO'S FIVE-BANDED BEES; THEIR GOOD TEMPER UNDER AGGRAVATING CIRCUMSTANCES.

I notice in a copy of the *American Apiculturist* (p. 124), Alley's comment on your description of the behavior of your Punic colony, where he says, in the fifth sentence, "There is not a colony of any race of bees that would not behave as bad," and yet was it not claimed that the only time it was *possible* to *make* the Punics sting was during swarming time? Allow me to tell you how I served the colony of our five-banded breeding queens. It is raining to-day, with north wind; temperature 66°, and I have just been testing our goldens to see if I could make them sting. Here is the way I went at it. If any one can tell me a better way to make them sting I will try it:

I removed the cover with a jerk, took off the enamel cloth ditto; lifted out a frame of brood, and gave the hive six kicks, severe enough to make it bounce; then I blew my breath on the bees in puffs, and gently, after which I moved my hand rapidly over the frames, then took up a bee and mashed it thoroughly to get the poison scent, and again moved my hand over them and blew on them; but not one stung me or stood in the air before my face. When I got through kicking the hive, the air was full of bees; but they simply arose from the combs, circled around, and piled in at the entrance; and before I closed the hive (which I did as soon as I got through teasing them) all were on the combs or inside of the hive, and perfectly quiet. All of this with no smoke near, nor has there been to-day nor for weeks. We draw on this colony nearly every day for brood to start queen-cells; and yet we had to extract their combs clean three times to make it safe for the queen and bees for us to handle the combs during July, which shows that they have plenty of energy in the right direction.

Swedona, Ill. S. F. TREGO.

BEE-HUNTING; A GOOD FIND.

Dear Friend Root:—While camping out for a week last August, within 25 miles of Mt. Hood, besides bringing down some fine game our party had the pleasure of cutting a bee-tree. Early in the morning, with axes, a saw, iron wedges, a maul, and tin pails, we started for the forest. The bees had awakened before us, and a fine string of workers pouring forth from a hole about 20 feet from the ground in the side of a huge fir-tree indicated a good find. After the usual amount of sawing, chopping, and driving of wedges, down came the tree and out came the bees. They were angry at receiving such treatment, and began to resent it as only an angry bee can. It is needless to say they were not around long until they made themselves felt. After some sawing and chopping we got at the honey, and, besides securing a good colony of bees, we got about forty pounds of honey. J. W. JENKINS.

The Dalles, Or., Oct. 20.

[Why, friend J., if you were really a whole week within 25 miles of Mount Hood, why didn't you tell us something more about it, and something more about that wonderful country? The thought of Mount Hood as I saw it fairly makes my heart bound now. I was not then able to climb mountains; but I shall remember the glimpses I got of it whenever we had a clear sunny day, as long as I live.]

THIRTY-FOUR POUNDS PER COLONY; A GOOD WORD FOR HOFFMAN FRAMES.

With the help of the A B C and GLEANINGS we have secured an average of 34 lbs. per colony, spring count, with every stock, except one, amply supplied for winter; no honey until after July 4. Your improved Hoffman frame on tin rabbets gives entire satisfaction. Thanks to friend Robbins (page 725) on "How to Prevent Increase." I think I can make the plan work all right, as I practice something similar.

Corunna, Ind., Oct. 19. S. FARRINGTON.

THE HIVE AND HONEY-BEE.

This book, written by Langstroth, revised by Dadant, and translated by the latter into French, has lately been given the honors of a re-translation into Russian, by Mr. G. Kandratieff, editor of the Russian *Journal of Apiculture*, and Director-in-Chief of the Imperial Opera at St. Petersburg. The work is an exact translation of the French edition, and contains 482 pages. This is a new honor, both for father Langstroth and the Dadants, which is indeed well merited.—*American Bee Journal.*

OURSELVES AND OUR NEIGHBORS.

For our light affliction, which is but for a moment, worketh for us a far more exceeding and eternal weight of glory. II. COR. 4:19.

Lay up for yourselves treasures in heaven, where neither moth nor rust doth corrupt, and where thieves do not break through nor steal.—MATT. 6:20.

Pardon me, dear friends, if I continue to talk about this matter that has come up so often of late in regard to our outdoor rural industries. A certain class of people have been saying that farming doesn't pay; and there has been a strong tendency for our boys, to say nothing about the older ones, to fall in line and hunt around for something else to do, because everybody *knows* that farming doesn't pay. I tell you, farming *does* pay; and before I get through I feel sure that a great part of you will, to a greater or less extent, agree with me. The professing Christians among our readers should certainly agree, even if others do not. I am not going to teach farming under this head—not this time, any way; but my remarks in that direction will come rather under the second of the two texts I have chosen.

A few weeks ago it was announced in our Saturday afternoon prayer-meeting that the semi-annual conference of the Congregational Churches of our county would meet in Litchfield, Medina Co.; and then the pastor called for delegates. There were several nominations. The first person could not well go; ditto the next; the third one said flatly that she *wouldn't* go; and then the office of going as delegate began to be pushed from one to another as if it were some very disagreeable piece of drudgery, and that it was a kind of imposition to ask any one to go as a delegate only nine miles from home. Now, I have not been at conference very much for a good many years; in fact, I had fallen into a way of thinking that it was well enough for people who had no regular employment, but that business men could not be expected to neglect business and go and sit two whole days listening to dry sermons preached by country clergymen, during the middle of the week. Does the above sound rather harsh and uncharitable? I think it does; and, to tell the truth, I am ashamed of it; but I have been getting, for a few years back, into something like that way of thinking. This Saturday afternoon, however, they carried the matter rather to excess, and I felt ashamed of myself. I arose to my feet and said, "Friends, I will go as a delegate if you wish me to; and at this season of the year, when we have comparatively little business, I will take any office and perform any duties the church may call upon me to perform, as well as I know how. During the spring and summer months, when our business is at its height, I hope you will excuse me from such duties, and also excuse Ernest and Mr. Calvert. There *are* times when it is a Christian duty to *stand at your post* a good deal as a locomotive engineer is expected to stand at his post."

From the moment I stood up and volunteered to take the office that nobody wanted, I felt happier. I was glad when the day came to go to conference, and a special spiritual blessing seemed to attend me during the whole session.

A word about dry sermons, etc. There was just one sermon that might be called, by a good many, dry and behind the times. It was a revival of the old doctrine of election. If any of you do not know what that is, don't stop to inquire; you are just as well off. A young minister, who delivered the sermon, received so much criticism, right and left (of course, good-natured and kindly criticism), that very likely he will not preach in that line much more.

The pretty country church was filled with people, and they were bright, wide-awake, intelligent people, fully up to the times, even if they were mostly farmers and farmers' families. In fact, a great part of the blessing I received came from the fact that I was among not only laboring people, but good, pure-minded, godly people—those who are not only intelligent and well educated, but who love righteousness and hate iniquity—gathered together to talk over the evils that threaten the church of Jesus Christ. To get acquainted, and lay plans for protecting our people and our church, was certainly inspiring.

The sermons and lectures were not all from country clergymen, either, for we had some rare good talks from college professors who stand high in our State and nation; and one of these forms the subject of my talk to-day. Prof. H. C. King, of Oberlin, O., gave us a lecture in the evening on education and its relation to community. In this talk he presented us with a lot of statistics that had been gathered with considerable pains and expense. He first asked the question, "Where do our college graduates and our great men in the interests of education come from?" Most people have got into a way of thinking that *towns* and *cities* offer great advantages in the way of education. Come to think of it, I rather think they *do*. And then most people jump at the conclusion that it is a misfortune for a boy to be obliged to grow up in the country. He has not the facilities for getting about among the people that a town boy has. He can not attend lectures, meetings, and the various societies, that the town or city boy does, and for various other reasons he labors under a great disadvantage; and on this very account our farmers give up the farm and move into town in order to facilitate giving their children an education. If a *town* boy enjoys advantages that the farmer's boy does not, the *great cities* must afford still greater advantages; therefore the city boy, especially if his parents are well to do, so he does not have to work all the time, would be likely to far oustrip the town, village, or country boy. Good logic, isn't it? But facts are proverbial for being stubborn. Let us turn to the hard statistical figures.

How many successful and really valuable college graduates are brought up in the city, and with all the advantages of the city? Less than *three per cent*. I do not suppose you are astonished, for you have heard this before. Prof. King did not say any thing about successful *business* men; but I want to ask you to look about your own home and see where your great and good men come from—you may include men of capital, if you choose, but, please, only those who are making a good use of their capital—who are using it to help community in general, and hold up the standard of righteousness and purity so far as he can. Where do *these* men come from? Were they brought up in a city, with the advantages that at least moderate wealth gives? I think you will agree with me that it is just the other way. Moderate-sized towns have furnished rather more good rising men than the cities; but the *great bulk* of the college graduates—the men of brain, bone, and muscle, come from the *farm* or *farming villages*. They are children of parents who did not make farming pay in the sense that most people would use it. You all know pretty well, I think, if you use good sense and look at the matter squarely, that the farms and farming towns are *constantly* furnishing boys of integrity and worth to fill important and responsible places. These boys are the outcome of something that made it necessary for them to work hard for a living. The boy who is brought up in ease, whether in town, city, or country, never amounts to very much—that is, this is a great general rule. There are exceptions, of course. Some boys will *bear* ease and pampering, and still develop into great and good men. But it seems that, to develop to its highest extent, either the physical, mental, or moral, there must be an incentive that nothing can give except poverty, or, at least, moderate poverty. Why, you know it by your own experience. The most profitable schooling I ever got in my life was when I was obliged to walk two miles and a half every morning, and chop all the wood besides, for a fair-sized farmhouse and farmer's family. Yes, one year before this I had the advantages of a city school. I was living with relatives, and didn't have very much to do. The high school was so near my home that I had quite an easy time of it. A sudden change to wood-chopping, a walk of two miles and a half, and farmers' fare, built me up bodily, *mentally*, and, I hope, *morally*.

Why, it is only the same thing that has come to light in the wheel business, mentioned in other columns in this issue. God intended that we should use our brains and muscles—yes, he expected us to use them vigorously. If we don't, they will become dwarfed and comparatively useless. Prof. King told us that statistics show plainly and overwhelmingly that the men who stood in the front as the saviors of our nation were those who had been brought up in the country or in country villages—villages where the greater part of the people are farmers and have their farms near by their homes. Of course, there is an advantage in living where there are sidewalks and good roads. We can train our muscles in some better way than pulling our feet out of the mud and clay. There is also an extreme in both directions. No doubt many boys have been deprived of the advantages of education because of *extreme* poverty; but a hundred more have suffered because they had *too easy* a time. Now then. The very men and women who have been complaining, getting disheartened and discouraged, and possibly getting soured because farming does not pay, may have been greatly blessed in what they regarded as a calamity and a misfortune. Why, my good friend, your earnest, heartfelt prayers have been answered by this very thing you lament. You have been praying for the influences of the Holy Spirit, for a spiritual revival in your hearts, and in the hearts of your families. God could not answer that prayer and give you the worldly prosperity you had in mind at the same time. In his infinite loving kindness he has spared you from great trials and great calamities that would have been sure to come with wealth. We have been told a little fable where a good man held out a valuable coin and a piece of gingerbread to a child. "Which will you have?" said the philosopher. The child chose the gingerbread, without any hesitation. My friend, are *you* going to choose the gingerbread?

A very good friend of mine, who worked hard all his life on a farm made the remark that he had earned just about enough to educate his children—no more. One of them bids fair to become one of the leading ministers of the day. Suppose this man should say that farming does not pay, and keep in mind only the low level of worldly prosperity in dollars and cents. He who brings up, educates, and furnishes the world with a man who can stand up before men, even in our great cities, and teach men to love righteousness and hate iniquity, has done a *thousand times better* than if he had accumulated—shall we say millions? Why, the comparison is ridiculous. If you, my dear friend, have brought up and educated even one boy or one girl, and have placed that child where it will battle for the right and put down the wrong, you have laid up *treasures in heaven*, and that is exactly what our text means.

What does *money* amount to in comparison with something that will help the world toward righteousness and purity? In the effort to educate your children you may have incurred a mortgage that sickness or disaster may prevent being paid, even at the time of your death. Which is better—to die with your property unincumbered, and leave your children with no education, or to feel, in your dying moments, that you have fitted them to take care of themselves, and battle for the right, even though your legacy be a mortgage for them to lift and pay? Why, what boy or girl is there who would not gladly and lovingly take up the task of paying off such a mortgage? The education may have lifted them from *darkness* into *light;* and a little earnest hard work that may be required in lifting the mortgage will give them just the hardship they need to a perfect development of character; and it often takes our boys and girls not only from 20 to 30, but from 30 to even almost 40, to become so fully matured and so rooted and *grounded* in industry and good principles that they will be able to withstand temptation. Perhaps you have been tempted to feel sour, and may be you have caught the infection and contagion—for I regard it as nothing else—so you are just now ready to move off from the farm and go to town. Don't do it. I am sure worldly prosperity is not only more dangerous, but more *damaging* in the end, than what thousands regard as poverty. "What shall it profit a man if he shall gain the whole world and lose his own soul?"

Now then. Would more worldly prosperity tend to the saving of *your* soul and the souls of *your children?* You may say that you would risk it, but *I wouldn't*. The present age and the times seem to make the temptation greater than ever before, to believe that money is the *one* thing needful. Beware of Satan's promptings and suggestions, and pray that God may give you grace to say, "Thy will, not mine, be done." Very likely he *has* given you just what the Preacher of old asked for—"Give me neither poverty nor riches."

Please do not understand me as recommending mortgages as a rule. At the present time a mortgage on the farm or farming lands is to be avoided, and to be incurred only as a last extremity. But we should remember this: There are things a thousand times *worse* than a mortgage on your property. You had better have a mortgage on your property, and lose it, than to go through life living on what belongs to other people—or, if you choose, stealing from your neighbors in a way that the law can not touch you. I have known people who owed bills right and left—bills at the grocer's for sugar and flour; bills for coal, etc., who could have paid all these things by putting a mortgage on their homestead. Better put a mortgage on your homestead and *lose* it than to steal after this fashion from your neighbors. Farming is not the only thing that does not pay; and when your grocer, through competition, sells you sugar so close to cost that his profit hardly pays for the string and paper to do it up, it is a *wicked* thing to evade paying him simply because he can not collect it legally. In fact, you have no business letting him *try* to collect it. Yes, there are some things worse than mortgages. You had better have your home mortgaged, and *lose it*, than to see your children take the downward road to ruin, because you kept them out of school, that their work might obviate the necessity of a mortgage. Letting them grow up ignorant and vicious is worse than to incur a mortgage and lose it.

But there is a better way yet, and I am sure that God will always direct us in a way that we may avoid wronging our neighbors and avoid keeping our children out of school, and avoid mortgages. To reduce expenses, give up luxuries. My good old mother used to make starch out of potatoes, to save buying it; and she used to twist up papers enough to last all winter, so she could light the lamps without using a match — thus saving matches. Of course, this was years ago; but getting back to this sort of economy even now would help us out of the trouble, and do us good besides. Of course, we want to be reasonable and rational. When matches are only a penny a box it will not pay you to twist papers unless you are badly out of work and want something to do. But there are thousands of things that our grandparents did without, and were comfortable and happy too, that we might do without, and find *more* comfort and happiness. Of course, I do not mean to recommend the shortsighted penuriousness that results in loss instead of gain. At one of the Endeavor meetings I repeated in substance the point made by Prof. King. Before I had sufficient time to sit down, the president of the county union Endeavor society repeated in clear ringing tones the first of my two texts:

> For our light affliction, which is but for a moment, worketh for us a far more exceeding and eternal weight of glory.

Now, do you not see the wonderful meaning, and with what inspiration Saint Paul *chose* those wonderful words? The fact that farming does not pay, or does not pay very well, is really our "light affliction"—that is, we look at it as an affliction; but it is really for the time being —"but for a moment," as Paul has it; and then just think of the grand summing-up—"worketh for us"—that is exactly it. If we are patient, industrious, and faithful, the whole thing *works out itself*. And what is the final ending? Why, "a far more exceeding and eternal weight of glory." Yes, "*glory*" is the word. When you keep on farming, even though you are tempted to be discouraged, and think it does not pay, if you endure to the end your reward comes—not in finer houses than your neighbors have, nor in broader acres, necessarily; but in seeing your children grow up accustomed to work and hardship. They learn on the farm to brave the storm and the wintry blast; they learn to *prefer* the stimulus of sunshine, frost, and outdoor air, to any stimulus that saloons or wine parties can give. They learn to *thank* God for the opportunities he has given them among men, rather than because they are *obliged* to work, and then take that other step and accuse their neighbors of being cheats, and to wind up by saying there is no room in this nation of ours for *honest* men.

Is it not sad, dear friends, to think there are those among us who have become so deluded and led away as to give voice to such sentiments, and then fold their hands and give up? Why, these "light afflictions" are answers to our *prayers*. They are from God's own hand. They are really exhibitions and indications of his loving kindness; and yet we oftentimes grumble and complain. Are there other occupations that give us the same discipline and drill as does farming? Well, I hope there are; but why do not the statistics and our observation show us that these other occupations furnish as many scholars, teachers, and real sturdy stalwart *men* (in the best sense of the word) as do the farmers' boys of our United States of America? I am proud of the fact that my early life was, at least the greater part of it, spent on a farm, and a rather poor farm at that. I would rather be a *farmer*, and wear farmers' clothes, and put up with a farmer's *hardships*, than to have the finest office in the finest city that our land can furnish; and, come to think of it, it seems to me that I have *heard* something a good deal in that line, with a little different wording. Let's see: "I had rather be a doorkeeper in the house of the Lord than to dwell in the tents of wickedness." The word "doorkeeper" means one who stands on the threshold; from which we see that David would rather enjoy the *least* of God's favors than to enjoy for a season all the tinsel and glitter of a wanton life, only to be cast away from God's favor at the end. What better exhibition of common sense *could* there be?

HIGH-PRESSURE GARDENING.

BY A. I. ROOT.

FARMING DOESN'T PAY.

A few days ago I saw two good stout men and a team standing in front of our tool-house. As they did not seem to be doing any thing, pretty soon I got around to where they were and inquired what they were waiting for. They said they were sent after the potato-digger, but it was gone—somebody must have borrowed it. I do not know how long they had stood there, but there they were when I came around. I felt sure it was there, right in its place, hanging up in plain sight, over the manure-spreader, and there it *was*. Perhaps they did not see it because it was hanging up. It was not hung so high, however, but that a man could reach it easily while standing on the ground. In fact, it was the most conspicuous object in the whole tool-house. You say, perhaps, that this was only an accident, and that such things happen with the best of us. Perhaps they do; but I can not believe that any real live wide-awake man—one who is interested in his business, and anxious to get to work, would make a blunder like this. We estimate two men and a team worth 50 cents an hour; early in the morning they ought to be worth a little more, if any thing; and it always worries me exceedingly to see a team with men standing idle. Sometimes one of them stops to tell stories, to look at the daily paper, to talk politics, and that, too, while all the rest have to await his movement. I said, *some* of them. I did not mean the horses, and I think I had better beg their pardon.

Now about this matter of saying things "ain't there" when they are right in plain sight. In employing all sorts of help I have had a good deal of this kind of work. Such blunders are almost always made by *half-hearted* people. One who likes to dig potatoes, and knows he has something worth digging, who has got his work all planned, and enjoys making things fly, will see at a glance every thing there is in the tool-shed, even though it be filled up with various tools, as ours is almost the year round. It is a positive *sin* to have so little interest in your work, and so little energy; and if you think you are going to get a living in this way, you will be disappointed at every turn. After you have found that *farming* doesn't pay, and have tried something else, you will find that there is not *any* thing that pays, unless you wake up and shake yourself, and put your whole heart and soul into your work. When I plan for a certain job, I go out before breakfast, or just before dinner, and not only see that the right tool is in place and in order, but, if it is not too heavy, I get it out in front of the tool-house. Then I get the appropriate doubletrees and neckyoke, and have them on the spot. By the way, we have two doubletrees and two neckyokes, just to avoid having the team and men stand still while somebody runs away across the lots after one or the other. Just now farming *is* close business, I admit, and therefore we must make it our constant study to avoid hindrances and delays. If we are so unfortunate as to have men work for us who are dull, we must keep them in mind and keep an eye on them. The two men I have been speaking of are not working for me. I think they are raising potatoes on shares; so when they could not see the potato-digger, it was, mostly, their own loss. Perhaps I should explain that said potato-digger is one of the shovel-plow kind—that is, a shovel-plow with some rods sticking out behind. It will dig a pile of potatoes in a day, and do it quickly and easily. The only drawback about it is, about ten per cent or more of the potatoes are liable to be left on the ground. If you are going to fit your ground for wheat, you can take them out after the harrow throws them out on the surface. Some of them you will probably never get at all, and you will have "volunteer" potatoes for the next season.

HAPPY SURPRISES.

I have talked to you several times about the happy surprises a Christian has a right to expect. That is not quite it, either; for if we were *expecting* them all the while they would not be *surprises*. Perhaps I should put it this way: He who does his duty, and tries to have his heart right before God, will be continually meeting with happy surprises; and these happy surprises are among the brightest things one meets in this world. And I think a *farmer* also has a right to happy surprises—that is, if he is a good farmer, and is honest, faithful, and hard-working; and if a man is *both* Christian and farmer, these surprises ought to make him very happy indeed. Well, now, I am not a very good Christian, and I am surely a very poor example in farming; but for all that, God sees fit to cheer my way with many happy surprises, to overbalance, as it were, the disappointments; and there are three of these surprises that I wish to tell you about to-day. The first one is in our New Rose celery. While I was in California our boys started some New Rose celery along with the other kinds. The plants became too large to stay in the greenhouse, and they had to be put somewhere; so we made two rows and a half down in the creek-bottom grounds. It was so wet we sort o' tramped them into the mud; and then the rains and floods came, and I made up my mind that that lot of celery planted out so early was just *another* waste of time and expense. It held its way, however, after a fashion, until some time in July. By this time some of the lowest portions were drowned out entirely; so we took the half-row and filled out vacancies, and that left us just two rows forty rods long. When we filled out the rows the plants taken up were, some of them, large enough for market; but they were green, hard, and unbleached. These plants grew nicely; and this convinced me that celery can be moved at almost all stages of growth; and, if done properly, it will grow right along.

Some time during the fall these two rows of celery began to be something immense. We banked it up as well as we could, but other crops had been planted so near it that there was no dirt and no room to get any. I thought of drawing on some boards; but the other crops that were crowding the celery would be injured by tramping and handling the boards, and so we banked it all we could, and let it go, thinking to bleach it in the cellar after it was taken up. Saturday, Nov. 5, we decided to draw it in, as there had been several pretty hard freezes. How much do you suppose we got from those two rows forty rods long? *Six great wagon-loads of celery!* That is a stunner, is it not? But what do you think the heaviest plant weighed? *Just 9 lbs.*, roots and all, after we had shaken off all the dirt we could pound off. Now, then, if any celery-grower among the readers of GLEANINGS has had celery like that, let him "stand up and speak his piece." Where would the "new celery culture" be if *all* the plants grew like that? To tell the truth, it was rather a new celery culture of itself. It had suckered out, and each sucker was as large as an ordinary stalk of celery. One immense root held them all together. I wonder how these folks who sell all sorts of celery by the dozen would manage with this crop. Of course, this weight included green leaves and all; but I think that that one stalk would trim up at least 6 lbs. of celery—that is, when properly bleached. In regard to the quality, the suckers that were under ground, and thoroughly bleached, were the most delicious of any thing in the celery line I have ever tasted in my life. The hands who were taking it up tried it, and all decided in the same way. The two rows were planted four feet apart, and they were, perhaps, from six to ten inches apart in the row. This great growth was due to the gravelly sub-soil that underlies the rich loam, and which held the water during our recent dry spell, so that the celery kept right on growing. The ground had also been heavily manured for several years previously. Surprise No. 2 is—

GROWING MUSHROOMS BY STEAM HEAT.

More than a year ago we tried growing mushrooms in the cellar. The heat of our manure was too far spent, I presume, when the spawn was put in, so we never got any mushrooms. While I was in California the boys tore down our mushroom-bed and used the manure in various places. They said it was all dead, and of no use. Along in April, something very much like mushrooms began to grow in the greenhouse between the radishes and lettuce. I asked one of them about it, and he said it was toadstools that came from some old manure they had bought. These toadstools, however, grew in such wonderful profusion that they had to be pulled up like weeds, to get them out of the way; and several basketsful were dumped on the compost-heap. It did occur to me several times that these might be edible mushrooms; but I did not get time to have some of them cooked, and so the matter was dropped and forgotten. A few days ago those same toadstools began to come up again on the same beds. These beds were over the new agriculture, and the exhaust steam, that has been turned on since we commenced using the steam to warm the factory, down under those stones, seems to have been just the thing to suit the mushrooms. Of course, the ground is rich. This time I took some over home, and Mrs. Root cooked them for supper. They were the most delicious mushrooms I ever tasted: but to make sure that they were not poisonous we just tasted them all around, and then set the dish away until the next morning. Exhaust steam in many cases will certainly be *cheaper* than manure, to furnish the requisite heat. Some of the agricultural papers tell us that the manure from spent hot-beds is just as good as or better than it was before. This is certainly a mistake, as you will see by the tomato book. If not, why do those who use manure hot-beds on a large scale throw away the residue as so much sawdust? Now for surprise No. 3:

TILE DRAINAGE ALL PAID FOR WITH THE PROCEEDS OF A SECOND CROP IN A SINGLE SEASON.

The advertisement in our local paper resulted in selling our turnips and cabbages to such an extent that we were obliged to buy more to supply the demand. A farmer living five miles away brought me a load of beautiful cabbages and turnips. I asked him, of course, how he managed to get such a crop of fine vegetables during this disastrous season. Said I, "What manure did you use, friend K.?"

"Why, Mr. Root, did not use any manure at all."

"Look here, my friend; I know by the twinkle in your eye that you did *something*. Now, what was it?"

"Well, these things grew on a piece of new land. It was upland—in fact, on one of the highest hills in the county. A year ago last spring I underdrained it, and put on potatoes. Then I gave it a good manuring. Last spring the drainage did not seem to be quite sufficient, so I put in a second series of underdrains and did a good job, fixing it according to my own notion. I had a good crop of potatoes this year, and they sold at a good price. After the potatoes were off I bought some purple-top globe turnip-seed of you, and sowed the whole piece to turnips."

Here he stopped; but there was still a twinkle in his eye that encouraged me to question him more, and he finally said:

"Well, Mr. Root, I have received money enough from the *turnips alone* from that ground to pay for all the tiles and all the expense of laying them."

Now, here is a story for the *Drainage Journal*, which is, I think, the biggest it has ever had. I am quite a Yankee at questioning, as you know, and so I went on:

"But, Mr. Kraver, you must have taken some pains to market your crop in order to get that amount of money out of the turnips."

"Well, yes. I have worked pretty hard for a month back in selling my stuff. Yesterday morning I got up at half-past two so as to get a load of turnips and cabbages into Akron in good season. I sold them all out, and got home at night with the cash in my pocket. I do not get up that early every morning, mind you; but I can do it when circumstances seem to demand it."

I paid him almost $10.00 for the load of stuff he brought me, and it was not much more than half a load either. I think, if he tried hard, he could get on that wagon enough to bring him $25.00, and the team he had could draw it. Now, friends, how does this sound when we hear so much about farming not paying? Medina County is really about as poor a portion of the State as any we can find, for truck gardening; and this piece of ground in question is certainly not *above* the average.

NOTES OF TRAVEL

FROM A. I. ROOT.

NEW MEXICO.

This Territory is much like Arizona in many respects. Our trip through it on the Southern Pacific, however, in the month of February, did not present the beautiful scenery in the way of vegetation—the vegetation of the desert—that I found three years ago in the month of November. On my first trip the cacti and other desert plants were just finishing their season's growth, and I saw many beautiful flowers. In February, however, the new growth, in consequence of the winter rains, had just started. The geological wonders, however, in the way of rocks of different colors, mountains and desert, were as attractive as ever. They did not interest Mrs. Root, however, quite as much as they did myself. I presume she was getting to be tired out with so much travel.

Our first stop was at El Paso, on the Rio Grande. The town of El Paso had grown to such an extent in three years that I could scarcely find a single landmark to remind me of the town as I saw it on my visit before. It is not a *town* any more, however, for it is a fine *city*. There is no end of beautiful buildings, and buildings of great size too. I had an invitation from one of the readers of GLEANINGS to call on them at Las Cruces. Now just a word about the names of these Mexican towns. They are, for the greater part, named after some geographical feature, or in honor of some of the saints in the calendar of the Roman Catholics. Thus, El Paso means "The Pass," probably because it is here that a great bridge is located at the Rio Grande, and the various government houses for duties, etc. In fact, this great bridge separates (or unites, let us hope) the United States and Mexico: and as El Paso is the point where exchanges are made, the business relations of the two countries was probably the reason why El Paso received such an influx of business. It is certainly destined to be one of the great cities of the region. Mrs. Root preferred to remain alone at El Paso while I went out on the Atchison, Topeka & Santa Fe railroad to meet my friend Mr. Thomas Brannigan, one of our Medina County men who went to New Mexico some twelve years ago. A little out of El Paso is an immense smelting furnace for working the product of the mines. One can scarcely form any conception of these great structures, belching forth smoke and flame, until he sees them. To carry on these mining industries profitably, it is very likely that the wealth of some great corporation is needed. The buildings and apparatus are beautiful; and standing, as they do, out among the rocks and mountains and desert plains, they look strange enough. I suppose one reason for the location pretty well out of town is because of the smoke and poisonous gases that are liberated. These latter are sent forth in such volume, I am told, they sometimes kill all the vegetation in the vicinity. In the desert of New Mexico, however, there is not much to kill, unless water is brought on for irrigation. You will notice by the map that the A. T. & S. F. Railroad goes along the banks of the Rio Grande. The words Rio Grande mean the great or grand river; and when one speaks of the banks of the Rio Grande you would naturally think it something fine. To tell the truth, however, there are not any banks at all—that is, most of the time; and, in fact, there is not any river at all a great part of the time. During my visit in February, the Rio Grande was, every now and then, entirely dry—that is, so far as the eye could see. The stream, what there was of it, passed down through the porous sand and gravel, and then came out again to the sight when the soil seemed more compact.* Almost every thing seemed a desert waste until we reached Las Cruces.

The Rio Grande, like many of the desert rivers, changes its bed so frequently during times of great freshets that it is a serious and unceasing trouble to the railroaders. Every little while the road is washed away, and must be built again on a new course. I presume that some time, by the aid of irrigation plants, the Rio Grande and other desert rivers will be held in restraint. The name Las Cruces means "The Crosses," coming, probably, from the old mission churches and their adherents.

Just as we were coming into the place one of the passengers pointed out to me the home of my friend. He has charge of an apiary belonging to a well-to-do official, in some government capacity, if I am correct. This home, or plantation, as it might be called, seemed like an oasis in the desert. It was a large two-story frame building, such as we see here in the east, but it was surrounded by large broad piazzas, more like those of the planters' houses in the South. As soon as I made myself known I was welcomed by the proprietor, and all the rest, with the greatest hospitality. The grounds, the surroundings, and the fruit-gardens, were all beautiful; and the contrast is all the more marked when one can go around through the town, because this seems to be almost the only building in the place that looks like what we would call a *house*. The town is very old; and I hope the friends there will not feel hurt when I say it looked to me more like a village of mud houses, fit only for savages or the inhabitants of some far-away islands of the sea that we read about. Even the stores, groceries, and hotels were made of this same adobe brick—brick simply dried in the sun.

When I first came into the town I went into a store to inquire my way. I saw the sign, "Store," over the doorway, and I thought they could, of course, give me the information. In the first place, there was not a window to the store; and when I got inside I could not see any goods—at least, nothing that I should call goods; and, furthermore, there was not anybody in the store who could talk a word of English—I confess to getting a little homesick. However, after friend Brannigan, with a nice modern carriage, with a couple of smart ponies, drove me around the place, I felt a little more reconciled—at least, I did after I got out into the country and saw the fruit-ranches and the alfalfa-fields. We visited a bee and fruit ranch. The proprietor showed me some orchards and gardens away out there in the desert, that would do credit to almost any home in the suburbs of our great cities; apples and grapes and raisins; yes, and honey of their own raising. He showed me his little garden of exotic plants; and then he asked me if I would like to see them haul and spread manure, the way they do to produce these immense growths of fruit, trees, and all sorts of vegetation. Well, they do not use any *manure-spreader* at all in New Mexico. They just make an irrigation canal, and take the thick muddy water from the Rio Grande. They run this through the grounds, and the water is so nasty and muddy that it leaves a thick scum or sediment wherever it flows over the ground. This sediment is equal to concentrated manures for fruit, alfalfa, or almost any thing else. Why, the rushing waters, laden with their fertilizing treasures, made me almost wild to have a ranch in New Mexico; but then, when I thought of those mud huts for homes, that were almost the rule in that region, I felt almost homesick again.

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* Unless immense reservoirs are constructed to catch and store the waters during the wet season, I do not see how irrigation is to be carried much further with water taken from the Rio Grande. In fact, I am told there are a great many points where every bit of water in the river is appropriated. By digging down through this loose porous gravel, that permits an underground current, and making tight cement bottoms, no doubt a large amount of water can be secured, and this will probably be done soon.

May be Las Cruces has more real houses than I gave it credit for. But Mrs. Root was not along; in fact, I had not seen her for *four or five hours!* This was by far the longest period we had been separated since she met me in San Francisco. Besides, we were both beginning to feel a terrible longing for home and the children. With all these explanations it is not very strange that, instead of staying two or three days at Las Cruces, I began to make inquiries in regard to the first train back that evening. At suppertime my resolution was somewhat shaken by meeting some of the miners from Organ Mountains. These mountains, in fact, had considerable of a look like my old friends Superstition Mountains. There was not any turret nor battlements away up in the clouds, but there were some sharp peaks that looked more like church-spires than they did like mountains. An old miner who had received an injury in the mines told me a good deal about them, and said people had climbed up those spires, and they all gave me a pressing invitation to go up and see the miners work in those mountains next day. Friend Brannigan said, further, that there were some mountains right back of these that were almost as white as snow, and it was not snow either; it was mountains of gypsum, or plaster of Paris. By the way, I had had a glimpse the day before of one of these gypsum mountains. All at once I startled the passengers by exclaiming, "Just see that white mountain! What can it be?" They all jumped to the window and caught a glimpse of it. Then the train whirled us among the hills, out of sight; and when we had got to the spot where we thought it ought to be, it was not there any more. A good many explained its disappearance by saying that it was a mirage; but I am sure it was a plaster-of-Paris mountain. The railroad did not happen to go where we could get a glimpse of the mountain again. For several days after leaving Las Cruces I felt bad to think that I did not shake off my feeling of homesickness and go off and explore those wonderful mountains. Never mind; when we get out of debt again—if we ever do—perhaps the boys will send me off to finish my explorations. In the next issue I will try to tell you something about the strange city of Paso del Norte, just across the river from El Paso. It gets its name, probably, from this branch of the Rio Grande, "del Norte" meaning the northern branch.

A KIND WORD FROM AUSTRALIA.

Friend Root: Let me thank you for the good I have got from your books, particularly "What to Do," etc. That book did me good, and strengthened my hands. I was feeling in the dark, and your gleam of light showed the track. Deep cultivation, heavy manuring, and good stuff are my text-words, and I have succeeded very well in small things, such as strawberries, tomatoes, fruit, and poultry, and the best shops jump for my produce. Besides this, you have helped, by your writings, other poor men over here, and encouraged them and taught them. Let this gratitude of ours sometimes dwell in your mind, and repay you for your trouble.

Sidney, N. S. W., Sept. 19. T. A. BOARD.

GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS.
ILLUSTRATED SEMI-MONTHLY
36 PAGES 7×10
$1.00 PER YEAR

For a small moment have I forsaken thee. ISA. 54 : 7.

WE have to-day, Nov. 10, a heavy fall of snow, and every thing looks decidedly like winter. We usually do not have much snow in our locality before the first of December.

WE have just been advised of the safe arrival in Australia of two or three Italian queens that we sent from Medina some forty days ago. We sent out, toward the latter part of the season, something like three dozen, and so far have heard from only four or five queens.

OUR friend J. M. Jenkins, the supply-dealer of Wetumpka, Ala., has ere this, we presume, taken a new helpmeet. There was a brief intimation of the coming event in a letter ordering another lot of catalogues for 1893. GLEANINGS extends congratulations.

WE omitted to state, in our footnote to Mr. Crane's article on page 837, that he has a cone, or sleeve, of perforated metal, that slips right over the cone top of the smoker. This sleeve has an air-space between it and the cone proper, and, being fastened securely, the top may be removed without burning the fingers.

EXPERIMENTS WITH GLUCOSE: HOW THE BEES TAKE TO THE PURE STUFF.

IT has been intimated several times of late, that bee-keepers feed glucose to bees to get comb honey. We have all along doubted whether this would be practicable, and accordingly, during the past summer, we ordered a small keg of the finest glucose made, to test the matter for ourselves. We knew the bees would not take to it very kindly, but were greatly surprised to find that we could not get them to even *smell* of it; and Mr. J. B. Hains, of Bedford, Ohio, who wished to prove the fallacy of the thing, says this is his experience. We experimented with three colonies of different temperaments, and they all seemed alike to regard it with the same disfavor. Finally we thought we would see, one day, if we could not *force* it down 'em. We dipped our finger into it, and allowed the glucose to stream all over the cluster of bees; and while we were watching them they did not even take the pains to lick each other off, and we believe, if we had dosed them much more, the whole colony would have been killed.

When the stuff first came we thought we would sample it. It looked beautiful, clear as crystal, and as thick as nice well-ripened honey on a winter day. We sampled it, taking a good big spoonful. The first sensation was not particularly bad; but as the stuff began to melt in the mouth it was almost nauseating. It reminded us very forcibly of old rotten potato parings. (We never eat such things, but judge of their quality by the smell.) We invited, in turn, several others to taste it, and they all regarded it as positively bad.

Now, the point of all this is right here: If it is impossible to make bees take pure glucose of the finest quality, it is impossible to produce pure glucose comb honey by feeding; and all the talk we have had regarding the possibility of making glucose comb honey is a waste of words—that is, if our experiments were conducted carefully. This is possible, and, we fear, may be done: Twenty or thirty per cent of glucose may be added to honey, and fed to bees; but the pure article, never.

Again, the nasty flavor of glucose is so characteristic, that we believe we could detect the smallest quantity of it in honey, either comb or extracted. We believe we would about as soon rely on a carefully educated taste as on an elaborate analysis. Both together ought to be accepted as good proof of the purity or impurity of honey.

We want to give, right here, fair warning that those chaps who are adulterating with glucose, or contemplate doing so, had better go slow. In the first place, it is impracticable — yes, impossible — to get pure glucose comb honey. In the second place, 25 or 50 per cent mixtures will tell their own tale.

Later.—Since writing the above we have had the pleasure of a visit from John H. Larrabee, lately of the Michigan Apicultural Experiment Station, at Lansing. In consequence of his connection with the station he has, of course, made many experiments in apiculture; and among them was feeding pure glucose and glucose mixtures to bees. The pure corn syrup, the bees almost refused to take, although by starving them to it he has got them to store in a very few cells. Practically, then, his experiment would agree with ours mentioned above. By putting from 25 to 50 per cent of glucose into sugar syrup or honey he could get them to take it down.

Mr. Larrabee will go back to Vermont, and commence again on his own account the business of honey production. He is a progressive and intelligent bee-keeper; and although he is not now connected with an experiment station, we hope he will not entirely give up the field of investigation.

MORE ABOUT THOSE PUNICS; ONE REDEEMING QUALITY.

SOME of our friends may be interested in knowing how those Punics are behaving of late. We have been watching them narrowly ever since our first reports. Regarding their bad traits, we have nothing to take back, but, on the contrary, we are sure that we did not condemn them any too severely. But among all their naughty habits it would be a little singular if we did not discover at least *some* partially redeeming quality. Well, we have found *one*. They are the best defenders of their home against robbers, of any race of bees we have ever known. Indeed, when the robbers are the worst, we find we can pull the cover off their hive and leave their combs exposed for hours at a time; and although the robbers will at first pounce on to them fiercely, in a few minutes they begin to find they have "got the wrong pig by the ears," and then they hover about more cautiously. Those "little black devils," as one of the boys calls them, will stand in military array along the edge of the top-bars; and the *first* robber bee that comes within smelling distance will be met on the wing, and perhaps jerked down between the combs, and that is the last of Mr. Robber, for two or three Punics will very soon finish him* up. Our experiments were made somewhat late in the season; but we believe it would be safe to move the cover off at any time of the year, if the hive be well shaded. This trait is a very desirable one; but at the same time it is overbalanced by so many bad ones, that, if all Punics are as naughty as ours (and reports seem to show it), bee-keepers having them will soon brimstone them. We might add, in this connection, that this same skill in defending their home renders them terrific robbers, for no ordinary bee is a match for a Punic in a hand-to-hand combat. One time last summer, when the bees got to robbing, we noticed that there were two Punics to one Italian, helping themselves to the ill-gotten gains; and this, notwithstanding there were 200 times as many of the yellow bees as of the black in the apiary. Suppose the situation were reversed, and the honey-house door should be left open—what then?

THE RURAL NEW-YORKER.

AFTER I had given the *Country Gentleman* such a compliment as I did in the last issue, I felt a little troubled to think it might look as if I intended to place it ahead of the *Rural New-Yorker*. Well, in *some* things I do think it perhaps a little better authority; but on the other hand, the *Rural* has done a work in testing new things recommended to the farmer, and in sifting out frauds, that no other agricultural paper has done. In fact, our enterprising seedsmen can hardly *start* an old thing under a new name without having the *Rural* come after them with a sharp stick in double-quick time. There is somebody back of the *Rural New-Yorker*, with such a real honest energy and vim that it tempts us to smile, even if he does, in his vehemence, bear on a little too hard at times. Long live the *Rural!* and, in fact, it *has* lived long already, for I remember walking two miles and a half to my grandfather's, more to look over the *Rural* than almost any thing else when it was first started, about forty years ago. Another thing, the *Rural* is broad and comprehensive. It takes in the topics of the day, the new enterprises, and the general news. It upholds godliness, and it sits down on tobacco and whisky with no uncertain sound. Even if it *is* an agricultural paper, it makes it its business to pitch in lively when our country demands the help of all good men. Again, it was one of the first to inaugurate the plan of getting opinions of eminent men on all the serious questions of the day. Last, but not least, it has just reduced the price to only $1.00 a year. If they are going to keep it up to its standard, and keep up its many and varied illustrations, as they have done in years past, it will be almost ridiculously cheap; and no one need be afraid to take it into the family circle and have every one, from the smallest child up, look at its pictures and read it all through. I said, a little time ago, that it did not give place to advertisements of patent medicines. It seems, however, that it does accept certain kinds of advertisements of this class. I do not think even this best, but perhaps the *Rural* folks are right and I am wrong. It is their own affair, any way.

A. I. R.

THOSE IMPORTED QUEENS.

WE have just been advised by our forwarding agents in New York that they received breeder's certificate, and advices from Havre, that crates of Italian bees were to arrive. They notified us that the packages could not be found on the manifest of the steamer when it came, nor did they receive any notification from the steamship company or United States customs regarding the arrival of bees. The queens came, however, and on investigation they and all the bees were found to be absolutely dead from fumigation on account of the quarantine regulations for the prevention of the cholera epidemic then threatening to enter the port of New York. We refused to receive them, of course, and we suppose ere this they have been burned. The case is a little peculiar. While the breeder in Italy is supposed to deliver, ordinarily, queens to us in good order, it is hardly fair that the shipper in this case, Miss E. Bianconcini, of Bologna, Italy, should stand *all* the loss. There is no hope of getting any damages from the quarantine authorities, as they are governed by the motto of the greatest good to the greatest number. In this case we propose to stand half the loss, and even then it will be rather heavy, as a consignment of fifty imported queens is rather expensive. As, in all probability, quarantine regulations will be in force again next summer, it is quite doubtful whether we shall be able to get any more imported queens for another season's trade, for it would be utterly useless to have bees shipped over only to be fumigated to death with sulphur. We have sold out all we had, except one or two queens almost superannuated, that we kept right along just because they were raising such nice queens.

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* We suppose we ought to say *her*, but *her* is too effeminate here. E. R.

DO BEES MAKE HONEY OUT OF SUGAR? FEEDING SUGAR, AND SELLING THE PRODUCT AS HONEY.

THIS matter was so emphatically settled years ago, that feeding sugar will not make honey, that I am a little surprised to see it coming up again. I am still more surprised that our good friend Prof. Cook, and the editor of the *Bee-keepers' Review*, should seem to be teaching in that line. In the back numbers of GLEANINGS are recorded some very careful experiments in this direction. In order to satisfy myself I fed a single colony of bees a whole barrel of sugar. Sections were filled and capped over so as to rival in beauty almost any thing that could be brought forward in the way of honey made from natural sources. But it was not honey at all. We uncapped the sections and removed the liquid honey, as our friends would call it, and placed it in sauce-dishes right beside the syrup before the bees had had it at all. I did not find anybody who detected a particle of difference in the taste. It was sugar syrup before it was fed to the bees, and it was just exactly the same kind of sugar syrup after the bees had put it in combs and sealed it over. Very likely many people, without thinking, would call it honey because it was in honey-comb; but ever so many *did* say it tasted like sugar syrup, when they were not told any thing about it. Another thing, *it did not pay*. In every one of my experiments the excessive feeding caused the bees to go to rearing brood and secreting wax. In fact, the wax scales fell to the bottom of the hive so they could be scraped up; and the consequence was, the sugar cost more than the honey could possibly be sold for. I know there is a wider margin between the price of sugar and that of nice comb honey just now; but I am sure that no one, even now, can pay expenses, even if the product is sold at the highest market price, and sold as honey.

At different times in the history of the honey business there have been found people foolish enough to undertake the matter on a large scale; but every such attempt has been a failure. Furthermore, I am sure there are a dozen well-posted bee-keepers who are living now, who made the same experiments I did, and the result was just as I have stated it. The whole thing is old, and has been gone over repeatedly. Very likely some other additional experiments have been made since this matter has been revived, during the past season; but if the experimenters will own up, I am sure they will agree to what I have stated above. On page 274 of the *Review* for October we find the editorial I have alluded to, as follows:

> #### SHALL WE RAISE SUGAR HONEY?
>
> Last spring I cut off the discussion upon this question because even its bare mention caused so much excitement that it seemed impossible to reason coolly or secure fair decisions. Recently published reports showing that even the best chemists and a class of forty students could detect no difference between "sugar honey" and the best honey from basswood and clover have again brought the subject to the surface. If, as Mr. Hasty has said, sugar honey gratifies the eye, tickles the palate, and nourishes the body; if it fulfills every requirement of floral honey; if, as Prof. Cook says, it *is* honey, why need it not become a legitimate product of the apiary?
>
> Opposition to discussion has been urged, on the ground that sugar honey could be produced only at a loss. "If it can't be raised profitably, why discuss its production?" "Let some one raise a pound of sugar honey at a profit, *just one pound*, 'they' said, and then—perhaps." These were some of the expressions used. To settle this point I have been experimenting a little the past season. From the feeding of 150 pounds of sugar I have secured 135 pounds of finished comb honey. The sugar cost $7.50; the honey would certainly sell for $20.00. This honey has been awarded first premium at fairs, been furnished to neighbors, and placed before visitors; yet its origin has never been suspected. This has been done simply as an experiment, and has completely proved what I already believed to be true.
>
> Now, if sugar honey can be raised at a profit; if it is really and truly honey, I ask, in all seriousness and earnestness, what are the objections to its production and sale? There is no occasion for indulging in florid rhetoric and exclamation-points; simply lay aside preconceived notions; allow *reason* to reign supreme, and coolly and calmly say why this extension of the bee-keeping industry would be wrong or work any injury to the pursuit.
>
> I think there is no better time than the present in which to settle the question, and I propose to devote the November *Review* to its discussion. Prof. Cook's article will answer for a "leader"—a much better one than I could write.

A visitor came into our office a few days ago and picked up the *Review* and read the above; then he made a remark something like this: "Mr. Root, what would one unacquainted with our industry say to find this in one of our leading bee-journals? And suppose some of our newspapers that wanted to make a sensation should copy the above, and pass it around. What would be the effect on our industry?" I went carefully over the whole thing a second time, to see whether any thing was said against selling the product as *honey* produced by feeding sugar; but there is not a word. I am not at all afraid it can amount to any thing like the oleomargarine fraud, as there is *money* in the latter, and I am sure there is not in feeding sugar. Furthermore, there is not any thing known that can be fed to bees, so as to make it pay, that will compare with even *poor* honey. It might in looks, but I am sure it would not please customers. If the thing were possible, how does it happen that no such product has ever been successfully placed on the markets? When there is a poor yield of honey, prices go up, and the markets are often destitute of a decent-looking article. It will not do to say that people have not found it out; for it has been discussed and proposed ever since bee-keeping has been an industry. Almost every bee-keeper in the business suggests it sooner or later; and unscrupulous venders of new-fangled hives and new-fangled secrets, from Mrs. Cotton up, have proposed feeding sugar and selling the product as honey.

How about friend Hutchinson's experiment where the product tasted like honey, and could be made at a profit? Well, my opinion is, that, by some hook or crook, some honey was gathered at the time of the experiment, thus increasing the yield, and giving it a honey flavor. I am sorry to reflect on one so accurate as the editor of the *Review* is, but I can think of no other explanation. A. I. R.

WHAT A PUDDING

That quaint old expression of our forefathers is so apt. We think of it daily when we look back ten years and recall how Victor Bicycles have outstripped all rivals.

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As is our usual custom we make the above offer to assist our present readers to introduce GLEANINGS to their friends. We will in addition give you, as a premium for all new names secured, a cash commission of 25 cents on each new subscription. It must be a *new* subscription. A change from one member of a family to another, or any like device, would not be securing a new subscription, therefore we prefer that you send your own renewal, if due, along with the new subscription secured.

3-INCH NETTING OF NO. 19 AND 20 WIRE NOT FURNISHED.

At the last minute, just before going to press, and after our page on wire netting is printed, we find that the manufacturers had so little demand for the light weights of 3-inch netting wire No. 19 and 20, that they do not list them this year, and therefore the cheapest thing we can furnish for pea brush is either 3 inch No. 18, or 2 inch No. 20, both of which cost 90c a roll, 1 foot wide and 150 ft. long. Please make a note of this in connection with what we say in full-page announcement.

MAPLE SYRUP.

If we can not offer much in the way of extracted honey we are prepared to furnish choice maple syrup, in one-gallon cans, at $1.00 per gallon in 10-gallon lots or more. For a less quantity we charge $1.10. We shall not be able to furnish much maple sugar till the new season opens in the spring, as we bought up and sold last spring all of this that we could get. There is plenty of good syrup in this vicinity, which we can procure and furnish at above prices, and guarantee it strictly pure maple.

HONEY PRODUCED WITH THE DOVETAILED HIVE.

In connection with the honey described opposite, we are most pleased with the fact that it was produced in our Dovetailed hives with section-holder arrangement. After Mr. Ball got his first lot of these hives three years ago and put them in use, he wrote that he could secure from ⅓ to ½ more honey, with less work, than with the old-style L. hives he was using, and he has since had several carloads, and will have another carload within a few weeks. We regard this as one of the best testimonies we can have, that this hive is a success.

DISCOUNTS FOR EARLY ORDERS.

Only two weeks remain in which to secure the 5% early-order discount on hives and supplies for next season's use. After Dec. 1st the discount drops to 4%. Quite a number have taken advantage of this offer, and we expect to hear from many more during the next two weeks. If you who have dealt with us are getting better offers nearer home, and prefer to have our goods so as to be uniform with what you have, we trust you will communicate with us, stating circumstances, and we will try to arrange prices to your advantage. We don't want *all* the trade there is, but desire to hold present customers and make new ones as well.

PRICE OF WIRE NETTING REDUCED.

We have just made a new contract with the manufacturers for our supply of wire netting and fencing for the coming year, and we call your attention to our ad't on another page, where you will find that prices are greatly reduced. They are not quite as low, however, as the special carload we offered two months ago. Of this we have sold out all the 18, 24, and 60 inch; but we still have a stock of the other widths. As we have an extra large stock of the 4-foot on hand we will make the following very low prices on this width only from now till Jan. 1st, 1893, and for shipment from here:

1 to 4 rolls, only $3.50 per roll.
5 to 10 rolls, only $3.40 per roll.
10 to 20 rolls, only $3.30 per roll.
25 rolls or more, $3.20 per roll.

These goods are fully equal to any thing we have heretofore sold, and these prices can not be duplicated anywhere, and are offered for only a limited time in order to reduce stock. Remember the size is 2-inch mesh, No. 19 wire, 4 feet wide, and are full rolls, 150 feet long. The other widths in stock, and prices, are as follows, all 2 inch, No. 19:

	1 roll.	5 rolls.	10 rolls.
12 inches wide	$1 00	$ 4 50	$ 8 50
30 " "	2 50	12 00	22 00
36 " "	2 80	13 50	26 00
42 " "	3 25	15 50	30 00

¾-inch staples for above at 15c per lb.

CLOSING-OUT PRICES ON SECTIONS.

While we do not acknowledge that the first quality sections we have been furnishing the past year are inferior in any respect to any heretofore furnished by any manufacturer, we have, nevertheless, realized that perfection was not yet attained, nor the cost of making reduced as low as it ought to be. We have felt that, unless we did improve our method of making sections, we might get behind in the race. It is our constant aim, in all kinds of goods we make, not so much to get the price down to the lowest offered anywhere, but to furnish goods of superior quality so that the slight increase in price over some offers made shall be much more than made up in quality. During the past year especially we have made great advances in this direction, not only in our own judgment, but also in the opinion of great numbers of our customers who have expressed themselves. We have planned, and are building improved machinery for making sections, which will cost upward of $1000 or more, by which we hope not only to cheapen the cost of making, but also and more especially, to make them more uniformly perfect in workmanship and finish. They will be smoothed both sides in a specially built machine, and reduced to a uniform thickness. These machines are not yet completed, and will hardly be in operation for several weeks yet; but they are far enough along so we look with assurance for the anticipated results. Now, to come to the subject set at the head of this notice, we have in stock over a million of choice sections made in the old way. They are choice goods, well made, and as good as any one can reasonably ask for; but we have too many of them; and in order to work them off we propose to offer them at prices that will make them move if there is anybody in want of sections at all. The surplus is of other widths than the standard 1⅞. We have about

250,000 $1\frac{15}{16}$ inch, open top and bottom;
70,000 $1\frac{13}{16}$ " " " " "
150,000 1¾ " " " " "
350,000 7 to foot " " " "
60,000 1½, 7 to ft., and $1\frac{15}{16}$ in., open 4 sides.

We will furnish any of the above for a limited time at the following net prices, which are not subject to any early order or other discounts, and for cash with order:

1000, $2.50; 3000, $7.00; 5000, $11.00; 10,000, $20.00.

Those who can use a larger quantity will please write, naming the quantity wanted. We have also some 85,000 of 1⅞ inch, and 40,000 of $1\frac{15}{16}$ inch No. 1 cream sections that we offer in connection with the above at $2 00 per 1000; 5000 for $9.00, or 10,000 for $17.00. These are choice, well-made sections, except in color. The retail price of our No. 1 white sections, standard size, will hereafter be $3.00 for a single thousand, and a deduction for greater quantities, up to 5000, of 2½ per cent for each additional 1000, making 2000 at $5.85; 3000 at $8.55; 4000 at $11.10, and 5000 at $13.50. Prices of larger quantities on application.

NEVADA COMB HONEY.

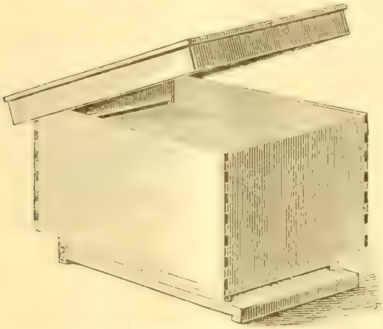
As our car of comb honey just arrived as we were going to press for last issue, we did not have time to report on it after opening up. Now that we have an opportunity, we desire to say that it is the finest lot of comb honey we ever set eyes on, and you don't have to credit our eyes alone for this assertion. All who have seen it add a like testimony. Mr. J. A. Buchanan, of Holliday's Cove, W. Va., who handles many tons of honey every year, and a good judge, writes, in remitting for 18 cases received: "This is the finest lot of honey we have had for years. It came in perfect condition." Some brokers in Cleveland wrote inquiring prices; and when they found our prices one to three cents higher than they had been paying for good white honey they thought they could not do any thing with it; but after seeing it they changed their minds, as the orders are coming in freely from them. Nothing would please us better than to place a section of this beautiful honey on the table of each of our readers, if that were possible. Some of the sections are snow-white, and filled clear out to the wood on both sides, top and bottom, without a single pop-cell next the wood, but a perfect sheet of white capping. They are also filled so full that there is a net weight of 25 to 28 lbs. of honey in many of the cases, though they contain only 24 sections 1¾ inches wide.

If you haven't enough honey for your home market, and are not too far away, order a crate of this and you will have no trouble in selling it at a good price. A single case or two are not so likely to ship safely as four or more, which we can crate together in such a way as to carry without breakage. The prices at which we sell are:

In lots of 1, 2, or 3 cases, 18c per lb.
In lots of 4 to 8 cases, 17½c per lb.
In full crates of 9 cases each, 17c per lb.
Five full crates, or 45 cases, 16½c per lb.

OUR NEW OUTSIDE WINTER-CASE.

The reports of this year and our own experiments last winter justified us in the belief that a sealed cover for outdoor wintering, with packing material above and around the brood-nest, was the correct method. In accordance with this idea we modified our winter-case for Dovetailed hive by giving it a telescope cover (see cut). This permits of using the old cover on the hive without disturbing the sealing and at the same time affords better access for pouring your packing material around and on top of the hive. The bottom inside edge of the case is stopped up with padded sticks as before, so that the space between the hive and the case is closed up. We do not think it necessary to go to the extra expense of an extra bottom for the winter-case. It is not the bottom that is to be kept warm, but the top, and that should be sealed and protected. Our extensive experiments last season prove this.


OUR NEW WINTER-CASE.

PRICES FOR 8-FRAME DOVETAILED HIVE.

New dovetailed winter case, including cover and padded sticks, 50c each; 10 for $4.50; or 100 for $40.00. Winter case, nailed and painted, 75c each; 10 for $6.50. For those who want winter-cases for their Simplicity 10-frame Dovetailed hives, the price will be 10c each more than above prices.

GARDENING FOR NOVEMBER 15.

We take it for granted that crops are pretty much all gathered. In our locality we sometimes let cabbage and turnips stand until Thanksgiving. It is rather risky for cabbage, however, and sometimes risky for turnips. At other times, however, turnips make quite a growth during this month and the first of next. On this account we almost always have a late sowing that may or may not amount to any thing. Parsnips and vegetable oysters, of course, will stand any weather. All you need to look out for is that they are not frozen fast in the ground when the market offers a big price for them. The real gardening, then, must be under glass. Cloth will answer at this season of the year for protecting plants that are already up and growing; and, under favorable circumstances, in might do to start some seeds. But these must be moved into the greenhouse later, or else glass must take the place of cloth.

The most important vegetable to push just now I know of is Grand Rapids lettuce. The intensive gardener should have lettuce in all stages of growth every month in the year. Seeds sown under glass, right off now, will come up and make considerable growth, even though you have no heat from manure or steam. Seedling plants may also be transplanted. I would put them 7 inches apart each way, making the rows so that the plants form an equilateral triangle, one plant at each corner, as explained on page 121 of the tomato book. At this season of the year I would rather have lettuce in the cold-frame than in the greenhouse, because you can remove the glass whenever there is a warm rain. If the plants are put the distance apart I have recommended in the above, there will be no danger of rot nor disease, providing you air them and give them rain whenever the weather will permit. There is not much danger from the sun so far south as it is now, of the plants getting too hot, even if the glass is left on. Better look out in the middle of the day, however, if the sky is very clear. If, when you tilt one of the sashes, hot air and steam come out, your plants are pretty near the danger-point, and need air. We have some very nice Grand Rapids seed, received of Eugene Davis, the originator, that we can furnish as follows: ¼ oz., 5c; ounce, 15c; pound, $1.75; 5 lbs., $7.50.

The plant that would come next to lettuce, in our opinion, would be spinach. Ounce, 5c; pound, 25c; 5 lbs., $1.00. This is even more hardy than lettuce, and will grow all winter long under glass, providing the sash are put a little apart to give air; or, better still, have the sash made of glass slats, which I have heretofore described. Corn salad will also do well if treated like the spinach.

You can sow Eclipse beets now under glass. As it takes beets a long while to grow, they will be just right for greens in February. We got 15c per lb. for beet greens for a long while last season. Eclipse beets, oz., 5c; pound, 50c; 5 lbs., $2.00.

If you have neglected providing cabbage-plants for the cold-frame, you can sow the seeds now under glass. They will bear almost as much exposure as spinach. We can furnish March's best strain of Jersey Wakefield stock seed; ounce, 20c; pound, $2.50. Cauliflower is a little more delicate than cabbage, but you can manage it if you take a little more pains.

Cress, or pepper-grass, is about as hardy as lettuce. Ounce, 8c; pound, 50.

Egyptian, or winter onion-sets, will do nicely managed as spinach under glass. If the sets are put out now they will be fit for bunch onions in January and February. Per quart, 10c; peck, 75c; 10c per quart extra if ordered by mail.

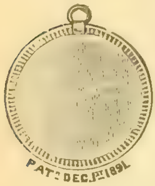
I think American Wonder peas can also be raised profitably under glass. We are going to make a trial of it this season, and report.

Radishes are even easier to raise under glass than lettuce. Scarlet Globe will give the earliest; but Wood's Early Frame furnishes nicer radishes a little later. Prices, ounce, 10c; pound, 75. If any of the above seeds are wanted by mail, add to the usual price 9c per lb. for postage and packing.

DADANT SHALLOW EXTRACTING-SUPERS.

In raising comb honey it is generally considered best to give the bees only as much room as they can occupy at once, usually one super. Considerable heat is required in comb-building and the work of the hive; and if given only the amount of room they can easily occupy they will work with better effect than if given twice as much room as they need. The same argument will apply in securing extracted honey; but as the full-sized frames are generally used for this purpose, it was not so easy to contract the amount of space to the capacity of an ordinary super. For this reason there seems to be a demand for shallow extracting-supers; and this is no new idea, for many, especially the Dadants, have been using it a number of years. To meet this demand with the regular Dovetailed hive, we are making shallow extracting-frames, 4½ inches deep, outside measure, just like the old-style all-wood frames, without a comb-guide, and giving about 4 inches in depth of comb surface. By putting 8 of these in an ordinary super (the same super used to hold 4¼ sections) without follower, and spaced 1½ inches from center to center, you will have an extracting-super. True, you will have more frames to handle; but the uncapping-knife will easily reach clear across the frame, and you can pare off the cappings very rapidly; besides, two of these frames will go in the place of one L. frame, in an ordinary extractor. We offer these hives with one or two supers, as No. 8 and 9, at the same price as the No. 1E and No. 2E. If any prefer, they can use a hive from the bottom up, made up of shallow supers and frames, two of which count the same as one body. We do not, however, recommend this style of frame for brood-chamber, as they are not self-spacing, nor do we advise this plan.

AUGITE STOVE-MAT.



How much of domestic happiness is marred because the dishes prepared for dinner are scorched or burned! How annoying to have something boil over on the stove, as it is likely to do sometimes with the most vigilant watchfulness. All these troubles can be avoided by using the stove-mat shown herewith. We were somewhat skeptical about it till we tried it in our home, and now we are convinced that there is nothing that can lay a better claim to the term "a household necessity." The mat is made of asbestos, bound with sheet steel, crumpled around the edge, 9½ inches in diameter, and is indestructible. Though it is almost as soft as felt, it will not burn. You can place it directly on the blaze of a gasoline-stove, over the gas-jet, in the fireplace, or on the stove, and it will prevent burning of all kinds of food that ordinarily require stirring. No stirring is required for oatmeal, milk, rice, custards, blanc mange, jellies, butters, catsups, apple sauce, etc. In fact, nothing will burn on it. Coffee will not boil over if the pot is on the mat; bread toasts nicely on it. Try it and be convinced. For the nursery there is nothing equal to heat the milk and food for the baby. If a grate fire, lay the mat on the open fire. If the mat becomes soiled, do not wash or scrape, but turn the soiled part next to fire, and burn until clean. The mat regularly retails for 25 cts. We will furnish them at 20 cts. each; $2.00 per doz. By mail, 6 cts. each extra, or 65 cts. per doz. We will give one free postpaid for a new subscription to GLEANINGS, with your own renewal and $2.00.

SECOND-HAND FOUNDATION-MILLS.

We have the following list of second-hand foundation machines which have accumulated during the past few months, some in exchange for new machines, others from those who have decided to buy what foundation they use. We give as fair a description as we can of these machines, with the price at which we will sell. We can furnish samples from any of the machines to intending purchasers.

One 6-inch hex., No. N, used a short time in our wax-room; in good order; makes fdn. 10 or 11 feet to the lb. Price $10.00.

One 6-inch hex., No. M, extra-thin mill, in splendid order. Price $10.00.

One 6-inch hex., No. K, thin surplus mill, in good order. Price $9.00.

One 10-inch, round cell, No. L, in good order for light brood fdn. Price $14.00.

One 10-inch, round cell, No. I, for light or medium fdn.; in good order. Price $14.00.

One 10-inch, round cell, No. E, old-style frame; made some years ago, but used scarcely any, and in good order. Price $14.00.

One 10-inch, round cell, No. C, old-style frame; in fair order. Price $12.00.

One 12-inch, round cell, No. D, for heavy brood fdn.; roll, same size as 10-inch, only 2 inches longer; one of the original Washburn mills, in fair order. Price $15.00.

One 12-inch Dunham mill for heavy brood fdn.; not so good as the above, but in fair order; will sell for $12.00.

SECOND-HAND MACHINERY.

During the past few months we have bought up several outfits of machinery for making bee-keepers' supplies; and if any of our readers or their friends contemplate putting in machinery we are prepared to fit you out from cellar to garret with everything you need in engines, boilers, machinery, shafting, pulleys, hangers, belting, saws, etc. The following is a partial list of the second-hand machinery we have to sell. If you desire further particulars we shall be pleased to hear from you.

One 20-H. P. Fishkill horizontal engine, rebuilt, and as good as new; would cost new, $400; will sell for $200.

One 5-H. P. horizontal engine and boiler, with engine mounted on boiler, in good running order. Price $150.

One 24-inch two-roll Fay sandpaper machine, nearly new. Price, new, $450; will sell for $175.

One V-groove section machine, nearly new. This is our make, old style, with screw-feed; sold some years ago for $75; will sell now for $40.

One cutter-head, with table complete, for cutting entrances to sections. Old style, but nearly new, and in good repair. Price, new, $25.00; will sell for $15.00.

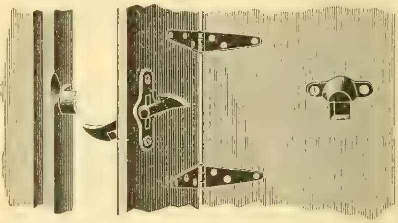
One double-head tenoning-machine, especially arranged for making the combined rabbet and miter joint of the Simplicity hive, but can be used for making sash and window-screen frames, etc. We could not build such a machine, and sell it for less than $150; we will sell this for $60.

Two extra large saw-tables for general use, to cut off or rip, with counter-shaft attached to frame; worth new, $50 each; will sell for $20 each.

Two four-piece section-machines, as good as new, they cost new, $85 each; we will sell them for $30 each.

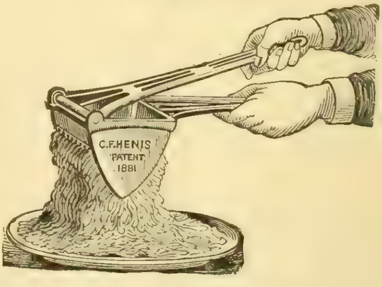
Also a large lot of shafting, pulleys, hanger belting, and saws, too numerous to mention here.

THE O. K. LATCH.



Stop that door from slamming. You can not do it more easily than by attaching one of the latches shown above. It will hold the door shut or open. It is intended for doors on all kinds of outbuildings, barn, stable, woodshed, honey-house, or any building that has a door that is liable to slam in the wind. The latch catches automatically either way when the door is opened or shut. It works so nicely that every one who sees it wants one. They are retailed from hardware stores at 25 cents each. They are made in this county, and we are allowed to make an introduction price of 15 cents each, $1.50 per dozen; by mail, 8c each extra.

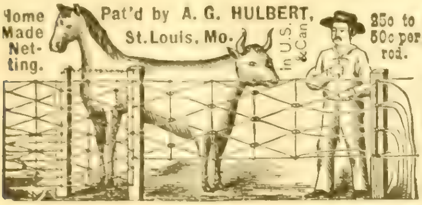
HENIS' FRUIT-PRESS.



These are a very handy and useful instrument, not only for mashing potatoes, as shown in the cut, but especially for making fruit jams and jells. It is a press and strainer combined. It is likewise an excellent thing for pressing wax out of old combs when you melt them up. We have sold a great many of these in the past, but the manufacturers advanced the price, and they have not been selling so rapidly since. We laid in a good stock when the price was advancing, and the prices we have been offering are as low as the wholesale prices made by the manufacturer. To make them move off, now that they should be in demand, we offer the following prices: 30 cts. each. By mail, 50 cts.; 1 doz., by freight or express, $3.00; or a box of 3 doz. for $8.25.

FOR A KINDS OF KEEPERS SUPPLIES. ADDRESS LEAHY MFG. CO. HIGGINSVILLE MO.

☞In responding to this advertisement mention GLEANINGS.


Home Made Netting.
Pat'd by A. G. HULBERT, St. Louis, Mo.
in U.S. & Can
25c to 50c per rod.

SAFE, DURABLE FENCE; ONLY $80 PER MILE.

LAND-OWNERS save one-half the cost avoid dangerous barbs

Agents make $200.00 per month and expenses **Cash**

The best local and traveling agents wanted everywhere. Write at once for circulars and choice territory; address A. G. Hulbert, Patentee, care of Hulbert Fence & W. M. Co. Manufacturers 904 OLIVE STREET, St. Louis, Mo.

Factory Catalogue with 200 engraved designs and prices, sent free to any who want fancy iron and wire work or city, cemetery and farm fences, etc.

☞In responding to this advertisement mention GLEANINGS.

5 Per Cent Discount On All Goods

Listed from pages 10 to 30 of our price list, which are ordered between now and Dec. 1st, for next season's use. This does not apply to goods on other pages, except those mentioned. A special reduction of 20 cents on each two-story chaff hive, ordered for a limited time. The quantity and early-order discounts to apply also. Special prices quoted on sections in lots of 2000 and upward. Name the quantity and size when you write. We guarantee as good a quality for the price as you can obtain anywhere. Dealers should not fail to write us before making contracts for another season's supply. We offer special inducements.

A. I. ROOT, Medina, Ohio.

DOVETAILED HIVES, SIMPLICITY HIVES,
SECTIONS, EXTRACTORS, ETC.
A FULL LINE OF
BEE-KEEPERS' SUPPLIES.
60-PAGE CATALOGUE. 1tfdb

J. M. JENKINS, WETUMPKA, ALABAMA.

☞In responding to this advertisement mention GLEANINGS.

ROOT'S GOODS FOR THE EAST.

Bee-Keepers of the East should

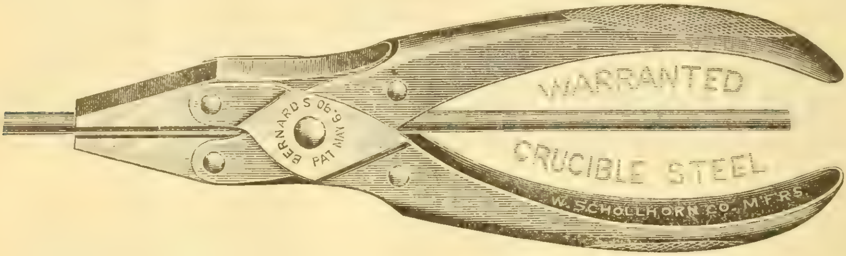
Bear In Mind that we have established at Syracuse an **Eastern Branch** where our Bee-keepers' Supplies are kept for sale, and prompt shipment. You can save time and freight by ordering from our Eastern Branch. We have engaged Mr. F. A. Salisbury to take charge of this business, and he will treat you well. He will be pleased to send you a list of goods kept in stock.

Address all orders.

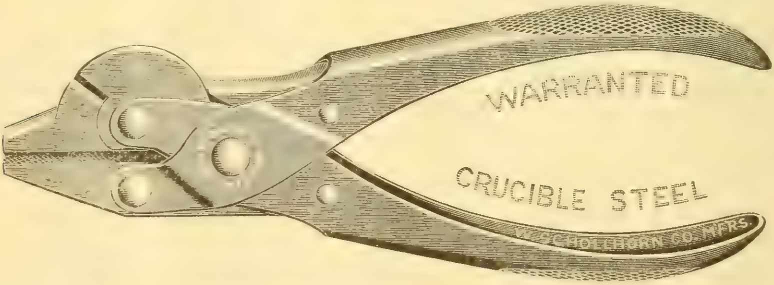
EASTERN BRANCH, F. A. SALISBURY, Agent, Syracuse, N. Y.

Bernard's Parallel-Jaw Crucible-Steel Pliers.

A year ago we called attention to some new pliers with parallel jaws, and their advantages over the old kind.



This cut shows the flat-nose plier and the way it works. You see that the jaws are not only parallel, but the throat is open, so that the article you grasp with them can be passed right through. By this means you can make them answer nicely as a wire-stretcher. We now have not only the flat-nose but also the round-nose, and the flat-nose with cutting attachment.



The advantages of these pliers over the ordinary ones are so obvious as hardly to need mentioning. They have a compound leverage 6 to 1, which, added to the advantage of the jaws being parallel, gives a powerful grip. The cutting-pliers will cut any thing you can get into them except hardened steel, such as steel springs and music wire. The compound leverage is so great that you will be surprised to see how easily they cut; but if you attempt to cut hardened steel you will ruin them. They are fully warranted; and, if injured in legitimate use, will be replaced by the manufacturers. For cutting wire they are away ahead of Button's or any other wire-cutting pliers made. As the cutters have a chisel edge, and on one side, you can drive a wire nail in to within ⅛ inch of the head, and then cut the head ff, which can not be done with Button's or similar iers. The smallest size will cut wire No. 13, and smaller; the medium size will cut No. 10, and smaller; and the large size will take wire up to No. 7, and cut it with ease. You can also trim off the end of a wire, and sharpen it like a wire nail. With a set of these pliers, in an extremity you could make wire staples or hog-rings out of nails; and there are times when the want of such articles is more than the pliers will cost. The jaws of the small size open $\frac{5}{16}$; of the middle size, $\frac{7}{16}$; and of the large size, $\frac{9}{16}$. The 3 sizes of each style are 4½, 5½, and 6½ inches long. They come rather high in price; but when compared with ordinary tools they are cheap. The manufacturers' name and address are stamped on every pair, and they are fully warranted. They are made by the Wm. Schollhorn Co., who have a wide reputation for their star brand of shears and scissors, and this is sufficient guarantee of their quality. We shall be pleased to supply them at the following prices; and as we buy them in gross lots we are able to make special prices to dealers who wish to keep them in stock.

	Length 4½	5½	6½
Flat-nose Bernard pliers, each	45c	60c	80c
Round-nose " " "	45c	60c	80c
Cutting " " "	70c	90c	$1.15
Postage extra, either style	04c	06c	08c

Please notice carefully the printed slip in the jaws of the cutting-pliers when you receive them.

A. I. Root, = = = Medina, Ohio.

HATCH CHICKENS BY STEAM
WITH THE IMPROVED
EXCELSIOR INCUBATOR.
Thousands in Successful Operation.
SIMPLE, PERFECT and SELF-REGULATING.
Guaranteed to hatch a larger percentage of fertile eggs, at less cost, than any other Incubator. Send 6c for Illus. Catalog.
Circulars Free.
Lowest priced First class Hatcher made.
GEO. H. STAHL, Pat. & Sole Mfr., Quincy, Ill.

☞In responding to this advertisement mention GLEANINGS.

OTTUMWA BEE-HIVE FACTORY.
Bee-keepers, look to your interests. Every thing n the line of bee-supplies constantly on hand. Price list free. GREGORY BROS. & SON,
1-23d Ottumwa, Ia. South side.
Please mention this paper.

SECTIONS.
$2.50 to $3.50 per M. Bee-Hives and Fixtures cheap. NOVELTY CO.,
6tfdb Rock Falls, Illinois.
☞In responding to this advertisement mention GLEANINGS.

S. T. FISH & CO.,
Commission Merchants.

Green, Dried, and Evaporated Fruits, Honey, Butter, Cheese, Eggs, Potatoes, Poultry, and Grain.

189 South Water St., Chicago, Ill.

We make a specialty of our **HONEY DEPARTMENT**, and sell our receipts throughout the United States. We have export connections whom we supply when prices reach such point as to permit foreign markets placing orders with us. We are opposed to adulteration in any form, and will positively not sell anything but pure honey. Send your adulterated honey elsewhere, but your pure honey **WE WANT**. We make liberal advances on consignments, and accept goods on a limit. **What Have You to Fear** by entrusting goods to our care? Nothing. We are responsible, and refer you to any bank or to GLEANINGS. To those who wish to sell at home we beg to advise we are buyers. We ask your correspondence, which will receive immediate response.

Respectfully, S. T. FISH & Co.

Cut this out and place in your honey-house. Mention GLEANINGS.

FOR A KINDS OF KEEPERS SUPPLIES.
ADDRESS LEAHY MFG. CO. HIGGINSVILLE MO.

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ROOT'S GOODS FOR THE EAST.

Bee-Keepers of the East should

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CONVENTION NOTICES.

The National Bee-keepers' Association will meet at Washington, D. C., Dec. 27—29. See our editorial columns.

The bee-keepers of Eastern Iowa will meet at Maquoketa, in the City Hall, Dec. 14 and 15. F. **Coverdale**, Sec., Welton, Ia.

The eighteenth annual meeting of the Vermont Bee-keepers' Association will be held in the city of Burlington, Dec 28th and 29th, 1892. Every one interested in apiculture is earnestly desired to be present. As a bee-keepers' association we know no State lines, but will gladly welcome all that come, regardless of their residence Programs will be published soon, for which address H. W. Scott, 125 Brooklyn St., Barre, Vt.

The Ohio State Bee-keepers' annual convention will be held in the parlor rooms of the Cherry Hotel, Washington C. H., O., Dec. 27 and 28. Arrangements are made for 1⅓ railroad fare on all roads leading into Washington; viz., B. & O.; C., H. & D.; Panhandle, and Toledo & Ironton. Also reduced hotel rates.
Miss **Dema Bennett**, Sec., Bedford, O.

The Illinois State Bee-keepers' Association will meet at the Statehouse, Springfield, Dec. 14th and 15th Railroad rates have been secured on the certificate plan. Hotel rates have also been secured. We hope for a large attendance. The Illinois State Short-horn Breeders', Swine-breeders', and Sheep-breeders' Associations will meet the same week at the same place.
J. A. **Stone**, Sec., Bradfordton, Ill.

The Southwestern Wisconsin Bee-keepers' Association will hold its next annual meeting in Boscobel, Grant Co., Wis., on the 13th and 14th of January, 1893, commencing at 10 A.M. All members of the association are requested to be present, as the following officers are to be elected: President, vice-president, secretary, assistant secretary, and treasurer. Blank reports will be sent to each member of the association for 1892, with instructions. A cordial invitation is extended to all bee-keepers, and especially to those who would like to join us. Each member will be notified at least one month before said meeting. **Benj. E. Rice**, Sec.
Boscobel, Wis.

The 27th annual convention of the Michigan State Bee-keepers' Association will be held in the Senate Chamber, Lansing, on Tuesday and Wednesday, Dec. 13 and 14. The following is the program:

Morning session, Dec. 13.—Secretary's report of last meeting; appointing committees; reception of members; adjournment.

Afternoon session.—Annual address by Prest. R. L Taylor; Adulteration, H. D. Cutting; Shall we feed cane-sugar syrup for honey? W. Z. Hutchinson; Question-box; reception of members; adjournment.

Evening session.—Experiments in bee-keeping, Professor A. J. Cook; Has the bee-escape come to stay? S. M. West; Question-box; reception of members; adjournment.

Morning session, Dec. 14.—Few bees and much attention, versus many bees and little attention, B. L. Walker; Shall we go out of the bee business? T. F. Bingham; reception of members; adjournment.

Afternoon session.—Deciding on next place of meeting; election of officers; report of committees; financial report of secretary; How can we stimulate the market? Jas. Heddon; Carniolans, have they come to stay? E. R. Root; miscellaneous business; adjournment.

Reduced railroad rates can be had by applying at your ticket office. G. E. **Hilton**, Sec., Fremont, Mich.

KIND WORDS FROM OUR CUSTOMERS.

The queen with the one-frame nucleus arrived Saturday evening. I found all in good condition, which demonstrates that you have long-distance shipment of queens and bees down to perfection. The bees are as gentle as kittens, so I am well pleased. **Geo. W. Brodbeck.**
Los Angeles, Cal., Oct. 24.

THE NEW WATER CURE FOR CHOLERA.

Friend Root:—Thanks for the water-cure tracts. I will endeavor to place them where they will do the most good. Keith, of *Mother and Child*, now says Hall has accomplished much good by advising large injections. The cures of cholera cases in Europe by this simple process are sufficient to induce every intelligent person to save a physician's bill if taken in time. H. M. H.

Please accept my thanks for a package of "A new method of treating diseases without medicine." I was asking a noted physician of this city what he thought of the method. Strange to say, he had never heard of it. He himself was troubled with persistent constipation. I gave him one of your pamphlets. He became interested, and this morning informed me he thought it a good thing; in fact, had proven it in his own case. Verily the physicians can and do learn many important things from the laity. E. L. **Simmons.**
New York City, Oct. 31.

THE WHEEL OF 1892.

Friend Root:—I have just read your article in **Gleanings** of Nov. 15, on "The Wheel of 1892." I want to thank you for it. "Well," you say, "that's strange." Perhaps it is, but I am glad I read it all the same, for, while I have looked kindly on the advent of the wheel (for it has come to Phœnix quite numerously of late), and realized some of its usefulness, I had never thought of half the things in its favor until I read your article. Your comparison of the wheel as against the saloon as a demoralizing agent, together with your description of its practical usefulness, is so good that I wish every *intelligent* objector could read it; for then their objections would surely be no more. While I am a professing Christian, and often read your sermons, as I call your Home talks, and have been thinking after you, on the line of God's blessing, yet I had not thought of the Safety bicycle as one of God's special blessings until I read what you think about it, and I believe you are right; and I want to say right here, that I thank God for right-thinking men who give the public the benefit of their thoughts.
Phœnix, A. T. J. P. R. **Irvine.**

A KIND WORD INDEED.

Friend Root:—I have just found leisure to read the first column on page 3 of your illustrated catalogue and price list. I can tell you one great secret of your building up and holding such an immense trade. Years ago you acquired the name of dealing honestly, and it has stuck to you ever since. Every man who once buys of A. I. Root not only buys there again, but advises his bee-keeping friends to buy there, so that you have thousands upon thousands of men who are living advertisements of you every day in the week, including Sunday; and as long as you make everybody believe you are honest, and give them as good bargains as, or a little better than, they can get anywhere else, why should they not overwhelm you with orders? Without any intention of flattery, I can tell you that you have a reputation that you may well be proud of.
Marshalltown, Ia., Nov. 28. O. B. **Barrows.**

P. S.—I am associating with bee-keepers in the West, and therefore know what I am talking about. I know of one bee-keeper in the State of ——, and another in the State of ——, who have the reputation of being *confoundedly selfish*. O. B. B.

[My good friend, we are exceedingly obliged to you for the above, which is certainly extravagantly kind. There is also a grand moral to be gathered from your letter. It *does* pay to work hard, and to "suffer long and be kind," in your efforts to build up a business. I do not mean that we have done all you give us credit for doing, but we have certainly *tried* to do so. Your postscript also points another moral; and if I were to name the States you have mentioned in your letter, I presume a great part of our readers would readily guess at least the first letter of the two names, because these poor friends of ours have been so thoughtless as to let their selfishness and greed stand right out before the world. I mean this: They should have recognized beforehand that such business transactions would be terribly damaging to the reputation of any man who wants to get a reputation for being fair and square in business matters. I am well aware, too, good friend B., that everybody does not see even my poor self in the light you do. Some might think your closing words belong to me; and I have been afraid sometimes that they might belong to me just a little. On the other hand, there are those who, perhaps, have been pleased with their business deal with the two parties alluded to in your postscript. Let us try hard to "abstain from all appearance of evil."] A. I. R.

HONEY COLUMN.

CITY MARKETS.

NEW YORK.—*Honey.*—White comb honey is arriving in sufficient quantities to supply the demand, which is gradually slackening off. Fancy stock, 1-lb., sells at 15@16; 2-lb., 12@13. Fair white, 1-lb., 12@13; 2-lb., 11c. There is more buckwheat honey on the market than the demand requires, and it is necessary to shade prices in order to effect sales. We quote: 1-lb., glassed or in paper boxes, 10@10½; unglassed, 9@10; 2-lb., 9c. Extracted, clover and basswood, 8@8¼; buckwheat, 6@6½; Southern, 70@75 per gal. *Beeswax* dull at 25@26.

HILDRETH BROS. & SEGELKEN,
Nov. 26. 28 & 30 West Broadway, New York.

ALBANY.—*Honey.*—We have received up to date 3000 cases of comb honey and 217 packages of extracted. We believe the bulk of honey produced in this section has now been marketed. Prices are not quite as firm on buckwheat, but are well sustained on clover, which continues scarce. We quote: fancy white, 17; good white, 14@16; buckwheat, 10@11. Large sections 1c less. Extracted, light, 7½@8; dark, 6½@7.

CHAS. MCCULLOCH & CO.,
Nov. 12. 393-397 Broadway, Albany, N. Y.

BUFFALO.—*Honey.*—Honey market unchanged; prices remain firm, apparently with reasonably good prospects. Very fancy 1-lb. comb, mostly 15@16c; No. 2, 13@14; No. 3, 8@12. Buckwheat, 7@12. Very choice extracted, 7@8; common, 6@7. We still need a liberal supply for late winter trade. Would be glad to hear from any of those having it.

BATTERSON & CO.,
Nov. 19. 167, 169 Scott St., Buffalo, N. Y.

NEW YORK.—*Honey.*—Honey moving pretty lively, with good supply of buckwheat; clover not so plentiful. One-lb. fancy clover, 15@17; fair, 12@15; 2-lb. fancy, 13@14; 2-lb. fair, 11@12. Buckwheat, 1-lb., 10@11; 2-lb., 9. Extracted, clover, 8@10; buckwheat, 6@7; Southern, per gal., 68@75. *Beeswax*, 25@27.

CHAS. ISRAEL & BROS.,
Nov. 21. 110 Hudson St., New York.

NEW YORK.—*Honey.*—Fancy 1-lb. sections, clover, in good demand at 14@15. Buckwheat, 1-lb. sections, 10@11. Little demand for off grades. *Beeswax* is worth 26@26½, and there is not very much in the market.

THURBER-WHYLAND CO.,
Nov. 23. New York.

ALBANY.—*Honey.*—The honey-market is quiet and steady, with stocks light and crops nearly all on the market. White comb, 15@17; mixed, 13@14; dark, 10@11. Extracted, white, 8@8½; mixed, 7@7½; dark, 7. *Beeswax*, 27@28.

H. R. WRIGHT,
Nov. 21. 326, 328, 330 Broadway, Albany, N. Y.

MINNEAPOLIS.—*Honey.*—We quote market as follows: One-lb. sections, fancy white, 19@20; choice white, 17@18; choice dark, 14@15; common dark, 12@13c; California white, 16. Strained, in 10-lb. packages, 11; in kegs and barrels, 8@9½.

J. A. SHEA & CO.,
Nov. 22. 14 & 16 Hennepin Ave., Minneapolis, Minn.

CINCINNATI.—*Honey.*—There is a good demand for honey, with a scant supply of all kinds. Extracted brings 6@8c on arrival; comb honey sells at 14@16c in the jobbing way. *Beeswax* is in fair demand at 22@25c for good to choice yellow on arrival.

CHAS. F. MUTH & SON,
Nov. 21. Cincinnati, O.

DETROIT.—*Honey.*—Comb honey in fair demand at 13@14c, and for best white, 15 could be had. Supply not large. Extracted, 8@8½. *Beeswax*, 25@26.

Nov. 21. M. H. HUNT, Bell Branch, Mich.

CLEVELAND.—*Honey.*—Honey is being bought at 15@16 for No. 1 white; No. 2 grades, 12@14, F. O. B. at shipping points. *Beeswax*, 18@20. Honey more lively than last week.

REYNOLDS & WILLIAMS,
Nov. 19. 80 & 82 Broadway, Cleveland, O.

KANSAS CITY.—*Honey.*—Demand good, supply large. White 1-lb., 17c. Extracted, 6@8.—*Beeswax.*—None on market.

HAMBLIN & BEARSS,
Nov. 22. 514 Walnut St., Kansas City, Mo.

BOSTON.—*Honey.*—Comb honey is selling a little slow. Prices, best 1-lb., 17@18. Extracted is selling well from 8@9.—*Beeswax.*—None on hand.

BLAKE & RIPLEY,
Nov. 22. Boston, Mass.

CHICAGO.—*Honey.*—There is little change in this market. Stocks are larger than they have been at any previous time this season. Best white brings 18c. Extracted, 6@9c. *Beeswax*, 25c.

R. A. BURNETT,
Nov. 19. 161 So. Water St., Chicago, Ill

KANSAS CITY.—*Honey.*—We quote: Comb, No. 1 white, 1-lb. comb, 17@18; amber, 15@16; dark, 10@12. Extracted, white, 7@7½; amber, 5@6. *Beeswax*, 20@25.

CLEMONS-MASON COM. CO.,
Nov. 23. Kansas City, Mo.

ST. LOUIS.—*Honey.*—Demand continues good for extracted at 5⅛@6¼ in barrels. Comb is steady at 10@16. *Beeswax*, prime, 24¼.

D. G. TUTT GROCER CO.,
Nov. 21. St. Louis, Mo.

SAN FRANCISCO.—*Honey.*—Extracted nearly all sold, and held at 7@7¾. Comb honey scarce at 12@13. *Beeswax*, 25@27.

SCHACHT, LEMCKE & STEINER,
Nov. 23. San Francisco, Cal.

FOR SALE.—Extracted honey at 8c per lb.
M. ISBELL, Norwich, Chenango Co., N. Y.

WANTED.—White comb honey in one-pound sections.
J. T. CARSON & CO.,
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R. H. CAMPBELL, Madison, Morgan Co., Ga.

Wants or Exchange Department.

WANTED.—To exchange Scotch Collie pups for any thing useful on farm or in bee-yard.
15tfdb N. A. KNAPP, Rochester, Lorain Co., O.

WANTED.—To exchange 20 acres fine land, adjoining Garden City, Kansas. All under irrigation; 10 acres in alfalfa, 10 in garden, for cash, San Diego, Cal., city or country property, or offers.
H. L. GRAHAM, 850 6th St., San Diego, Cal.

The Bee-Keeper's **Review** For Nov. contains illustrated articles from B. Taylor and G. M. Doolittle on cellar construction. Dr. Miller defends sub-earth ventilation Prof. Cook has an article entitled "What is Honey?" in which views are expressed that may be a surprise to some bee-keepers. R. L. Taylor shows when and where feeding may be made very profitable. The bee and honey show at the Detroit Exposition is described by the editor and illustrated by cuts made from flash-light photos. Send ten cents for this number, and with it will be sent copies of two other issues, also a sheet upon which are printed nearly a dozen portraits of the **Review's** principal correspondents (among them the editor), together with a list of all the special topics that have been discussed, the numbers in which they may be found and the prices at which they will be sent. A proposition is also made whereby these back numbers may be secured at HALF-PRICE. Price of the **Review**, $1.00 a year. The **Review** one year and **Advanced Bee-Culture** for $1.25. New subscribers for 1893 get the rest of this year free.

W. Z. HUTCHINSON, Flint, Mich.

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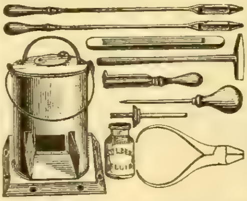

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Mention Gleanings.

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A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS.
ILLUSTRATED SEMI-MONTHLY
PUBLISHED BY A. I. ROOT.
$1.00 PER YEAR MEDINA OHIO

Vol. XX. DEC. 1, 1892. No. 23.

STRAY STRAWS

FROM DR. C. C. MILLER.

Finished cellaring my bees Nov. 16.

That sugar-honey discussion, I'm a little afraid, will be easier started than stopped.

What a comfort to know the bees are all snug and warm when the wind howls freezing cold!

Illinois bee-keepers have asked the State for at least $1000 to make a display at the big show next year.

Don't breed from a queen whose colony died in wintering, is advice I lately received. I don't believe I would.

Nancy Hanks' owner thinks it quite important that horses should have earth to eat, in order to have good digestion.

That Iowa man at Atlantic has a scheme that he is quietly pushing by which he may come in a length ahead of government in introducing *Apis dorsata*. Success to him!

The longest evenings are now here, and it's a good time for the younger members of the fraternity to do a lot of reading-up. No danger but the veterans will read all they can get hold of.

My wife says I must hereafter label all my "Straws" thus: "This is a joke," or, "This is sober earnest," since one man understands as "sarcasm" what I meant as honest commendation.

I hope Doolittle will not be discouraged from telling of his downfalls because so many are ready to tell him how to introduce queens. I always like to see him down, as it's such fun to see him get up again.

Allen Pringle has been appointed Superintendent of the Canadian Apiarian Department at the World's Fair. He's the kind of man that rolls up his sleeves and goes to work when he has any thing to do.

Squashes are usually kept in cellars. *American Gardening* says that is the very worst place. Keep them in a *dry* place where the thermometer never goes below 50°. As well try to keep a cracked egg as a squash that is cracked or bruised.

To preserve combs from the ravages of worms, it is quite important to keep them spread well apart through the summer, and it is also important in winter where there are mice. Leave an inch or two of space between them and they are not so convenient for nesting, neither will the midrib be so likely to be dug through.

Following the bad example of the *A. B. J.*, the *C. B. J.* has been calling me names too. After being lashed into a fury by reading "stray-sawing, sway-stawing, stay-strawing, straw-swaying," my jaws cramped so I couldn't read the rest.

That young man that's steering the good old *A. B. J.* is trying to start a quarrel between Mrs. Atchley and me by saying one can use a typewriter better than the other. But he can't make a break between two such old cronies as we are, can he, Jennie?

Illinois has set a good example to other States. The Illinois State Association resolved to ask that some of the $15,000 appropriated to each State by the Hatch Act should be used for the benefit of bee-keepers, with J. A. Green to look out for their interests. A good move and a good man.

Why do bees "rake"? is thus answered by I. W. Wykoff: "They are getting wood to make a kind of paper to seal their brood. They work mostly on the inside of the hive. The cocoons in the cells are made the same way." I think a hive would be moth-proof if the inside were all metal, so they could get no wood to weave a cocoon.

Whitewash for hives.—Dr. Tufts, in *American Bee-keeper*, says he prefers whitewash to paint for hives. Eighty cents buys material for 120 hives, preserves the wood, and in Louisiana, where it is important to keep hives dazzling white on account of the hot sun, he finds he can do it better and easier with whitewash than with paint.

Fooled again! My bees were in good shape to go into the cellar the last of October, but I thought nice weather would last awhile. Instead of that the thermometer went down to 19, then to 15, and, as soon as a day came when a few bees flew, I got them in cellar. It looks now like settled cold weather, and I don't know of any thing gained by their being out since the last of October.

Keep up with *the times* by taking a good bee-paper, **Gleanings** for instance. But you can't keep up unless you first catch up, and you'll make rather limping work trying to catch up by means of periodicals. The way to catch up is to get a good text-book like the A B C, master it, and *then* with a good bee-paper you can keep up with the procession without being all out of wind.

A novel method of introducing queens is given by John Poindexter, in *A. B. J.* When he has a troublesome colony that kills every queen given, he gives them a good smoking, raps on the hive a few minutes, smokes the queen in at the entrance, closes up the hive, loads quickly on the wagon, and drives seven miles to his other apiary, keeping bees confined till after dark. Succeeds every time. Wouldn't it do as well to have a small boy pound on the hive as long as it would be in going seven miles?

In wintering, Hasty says in *American Bee-keeper* that "a cluster formed touching the top, and stores below them, is very much safer than a cluster formed away down, and stores above them." His idea is, that moisture will collect on the stores above and drench the bees. I believe in lots of stores, but Hasty's argument looks rather against it. On the other hand, the bees insist on storing above instead of below.

A smoker without a cut-off blast is spoiled by smoke getting into the bellows, and with the cut-off the blast is weakened. For a long time I have said that a valve should stop the air from returning through the blast-tube of the Clark smoker into the bellows, but the manufacturers said it couldn't be done. The Crane smoker is certainly *aimed* in the right direction. After I've tried it a season I can tell whether it has hit the mark aimed at.

LANGSTROTH'S REMINISCENCES.

UNRULY STUDENTS; MARRIAGE.

The faculty had been annoyed for some time by students, whose class had been earlier dismissed, coming slyly to the door of a recitation room and thundering upon it with a heavy stick of wood. If the tutor went to the door, of course the culprit decamped; and the laugh which followed an unsuccessful attempt to catch him was often quite mortifying. The annoyance at last became so great that the faculty passed a resolution that the first student detected in the act should be dismissed in disgrace from the college. One morning after dismissing my division I found that I had left behind me the book in which I marked the standing of the students. Returning to get it, as I opened the door into the hall I saw a student battering with all his might upon an adjoining door. As soon as he caught sight of me he ran through the hall into the open air. Instead of pursuing him I left the building in the opposite direction; and as I entered the hall of one of the dormitories, through which I thought he might be coming, he did not notice me until he was fairly brought to a stand by running right into my arms. Imagine his consternation! Calling him by name, I said, "———, is that you?"

"Yes, sir," was the reply.

"Then you can come to my room after breakfast."

He came; and as I addressed him he looked as though his fate was sealed, but that he must try to brave it out as well as he could. He was a young man of good ability and generous impulses, but he had fallen under bad influences, and was rapidly losing his standing for scholarship. His father had written to me several times, with deep anxiety, and I had done all that I could to save his boy. My heart was moved at the sight of him, and I said, "You know the resolution passed by the faculty concerning this offense?"

"I do, sir."

"You know that duty may compel me to report your case?"

He assented.

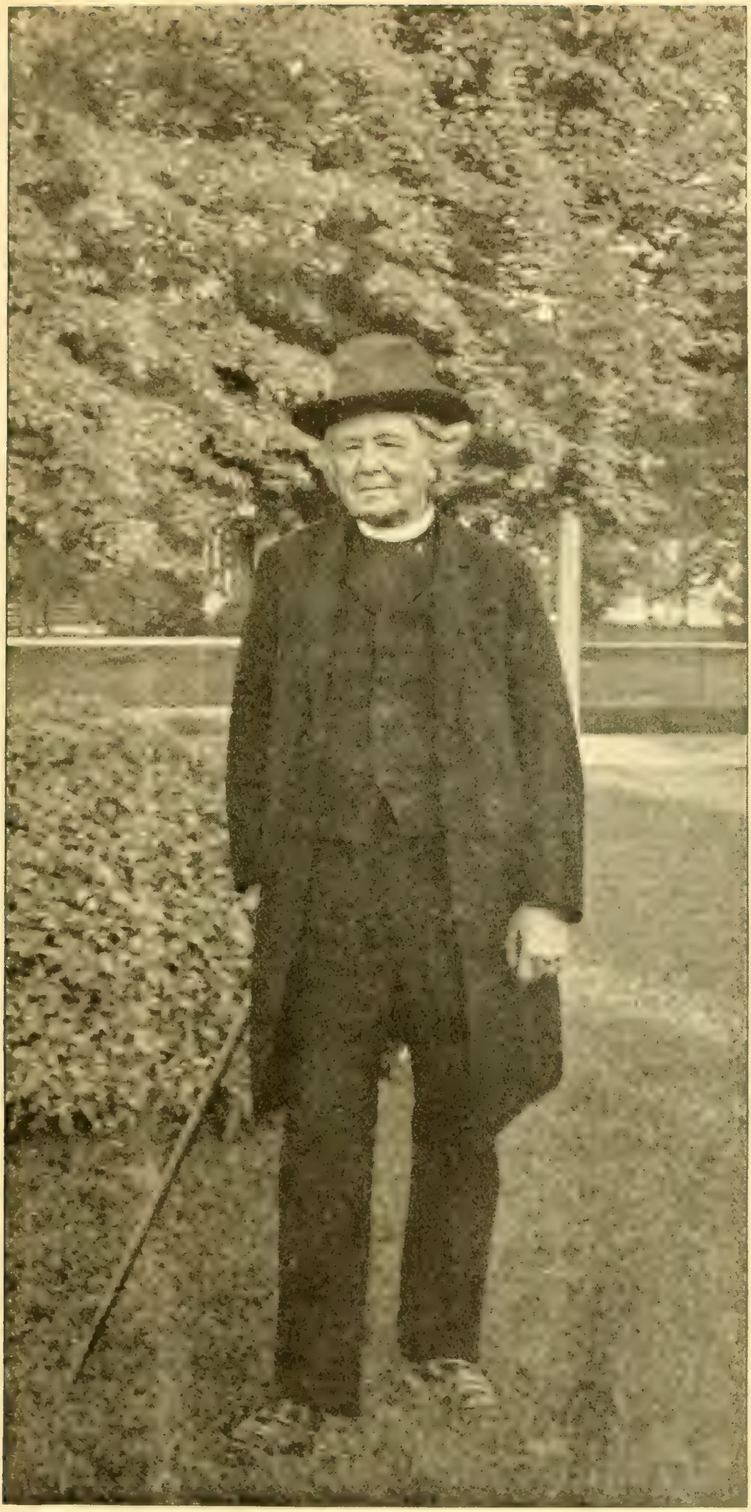
"Now, I can not bear to do it. Here are the letters which I have received from your anxious father. I want, if possible, to save you; and if you will give me your word of honor that you will try, from this time, to do your duty, I will never say a word to any one about the event of this morning."

He burst into tears, grasped my hand, and, with every appearance of sincerity, gave me the promise; and he kept it. Some years after, at a meeting of his class on commencement week, I was invited, with some other of the tutors, to dine with them. After dinner this young man related these facts, saying, "When I went to Tutor Langstroth's room I was desperate; for I felt that I should be dismissed, and that the disgrace would almost break my good father's heart. Probably, if the letter of the law had been carried out, I should have been ruined; but the kindness of Tutor Langstroth, his moving appeals, and the generous confidence which he gave me, melted my heart, and, under God, he saved me."

I will venture to give my readers a very short story of love and courtship. One of the young ladies' schools in New Haven, where I taught, was under the care of Mrs. Harriet Tucker, her chief assistants being her daughters. From my first acquaintance with this family, the second daughter, Miss Anna, possessed for me peculiar attractions. One day she brought me an algebraic problem for which she could find no solution; indeed, that problem had been sent by an instructor in some college, to Pres. Day, as one which could not be solved under his required conditions. I furnished her with several solutions which fulfilled these conditions. Being like myself of a mathematical turn, I gave her ingenious solutions of other problems. One thing led to another, and I eventually found that the arrow of the god of love could be tipped quite effectively, even with a mathematical point; so that I afterward used to say, laughingly, that I won my wife by mathematics.

EXPERIENCE IN THE MINISTRY.

During my tutorship my health was far from being strong, and I performed my college duties and pursued my theological studies under great drawbacks. I occasionally suffered from my head trouble, but never fell under its complete control. In the winter college vacation I preached as a candidate two Sabbaths in Andover, Mass., and received an almost unanimous call to become pastor of the Old South church and congregation. It had become considerably divided in trying to settle a pastor, and its leading deacons strongly urged me to accept the call, my theological teachers also advising the same. In following this advice I probably made one of the great mistakes of my life. Some 500 names were enrolled on the church catalogue; my health was poor, and the duties of a minister in such a large parish were very arduous. One of my first pastoral visits to the sick called me about four miles from home in the morning, and another visit the same day called me in the afternoon as far in an opposite direction. As the Theological Seminary was situated in the bounds of the parish, and many of its pupils were teachers in its Sabbath-school, it was obvious that a young man in poor health, and with very few written sermons ahead, would find his position as pastor of such a prominent church an unusually difficult one. The more I reflected on the great responsibilities which I was about to assume, the more I felt that the experiment was very hazardous, and I ought to have listened to the monitor within. If I had accepted a smaller charge, it would have been far better. I was settled over this large parish in May, 1836, and was married to my beloved wife, Miss Anna M. Tucker, Aug. 22 of the same year. I had an affectionate people who treated me with great consideration, were willing that I should exchange pulpits quite frequently with neighboring minis-



L. L. LANGSTROTH, PHOTOGRAPHED BY REYNOLDS, DAYTON, OHIO. SEE P. 897.

ters, or have the professors in the seminary often occupy my place. Still, the necessary work was evidently beyond my strength. At that time few of our Congregational ministers preached without a written manuscript. About half of my time I took only notes into the pulpit. Years after I left Andover, some, who had heard me extemporize while they were theological students, reminded me of the pleasant but novel experience it was to them to hear a preacher who did not read his sermons.

My congregation was famous for aged persons, and I often recall the venerable array of white-haired men at the heads of the pews. The widow of a Revolutionary soldier, almost one hundred years old, soon sent for the new minister to pray with her, although she was so deaf that she had not for years been able to hear a prayer. I always had an unusually strong and clear voice; so I thought I would try the experiment of making this aged woman hear a few words of prayer. Kneeling beside her chair, as close to her ear as possible, I prayed very slowly, but in as loud and emphatic a tone as I possibly could. Rising from my knees, after a short prayer, I saw tears rolling down her furrowed cheeks as she exclaimed, "O dear Lord! I have heard a prayer again! I never expected to hear another prayer, but I heard every word that you said, and you did not *scream* at me either!" After this it was thought that the new minister could almost make the deaf hear; but he could not.

Dayton, O. L. L. Langstroth.

Continued.

THE SUGAR-HONEY DISCUSSION.

THE REAL POSITION OF THE BEE-KEEPERS' REVIEW; BY W. Z. HUTCHINSON.

Readers and correspondents of the bee-journals have little to complain of in regard to the unfairness of the way in which the journals treat them or the subjects that come up for discussion. I think that nearly all of them, if not all of them, are fair in this respect—they are willing that all should have a hearing; and for this reason I feel sure that Gleanings will allow me to define my position on the sugar-honey matter. The main reason why I desire to make this explanation is, that almost every one seems disposed to jump to the conclusion that I am advising fraud.

When that first article came from friend Hasty, I think that I felt very much as some of the brethren do now. I thought, "Why, Hasty is advising adulteration." I did not see how I could publish it. I sat down to argue the case with my erring brother. To my surprise, I could not combat his views. (They yet remain unanswered.) The gist of his argument was that bees do *make* honey; that nectar, even though evaporated to the consistency of honey, would not be *honey;* that nectar is almost wholly cane sugar which the secretions of the bees change to glucose or honey. This being the case, he argued that it mattered not where the bees secured their cane sugar, as the product would be honey. This appeared reasonable, and I remembered that, when feeding honey for winter stores, I had often tasted of the product and thought that, unless I knew its source, I should have pronounced it honey. It had always been the policy of the *Review* to allow any one to be heard, even though his views were not orthodox. I remembered, too, that many of our blessings come in disguise, and, not being recognized at first, they are often opposed. I knew, of course, that the idea of feeding sugar to make honey was not new, but that it really became *honey* was new. Heretofore it had been called adulteration. I expected that the article would call forth severe criticism, but was surprised at the turn affairs took. Almost every one seemed to miss the true spirit of the article, and the cry of fraud was raised when there had not been the least intimation that the product was to be sold for any thing else then what it really was. This hurt my feelings more than I can tell. I was willing to admit that I might be lacking in judgment; but to be accused of upholding fraud, when that was furthest from my intention, was hard to bear.

The article was published. Later I gave the criticisms that were received. Then I was still further surprised to see others come to my defense. A wordy war seemed about to follow. I asked my readers whether it would be best to allow it to go on, and some good friends of mine plead so earnestly that it be stopped that I cut off the discussion, temporarily at least, even though many wished it continued.

It soon bobbed up serenely again, however, in the shape of articles from Prof. Cook, showing that even chemists, students, and *Cooks* could not distinguish sugar honey from the best clover and basswood. It seemed to me that it would be a good time to decide upon what honey really is, and I asked Prof. Cook to write an article headed "What is Honey?" It appeared in the Oct. *Review*, and, to my surprise, it was actually a defense of the Hasty view of the matter. The subject was again fairly started, and it seemed better to allow it to go on and have some kind of a decision arrived at than to try to smother it and have it bursting out in unexpected places. I wish that all who are interested in the matter could have the November *Review* and read the views of Hasty, Doolittle, R. L. Taylor, Dr. Miller, and others on this knotty question. Don't think that the arguments are all on one side, for both sides are very fairly represented.

Some seem to think that the editor of the *Review* is advocating the feeding of sugar to produce honey to be sold as floral honey. Neither he nor any of his correspondents have advised such a course. The editor has never advised the raising of sugar honey except as an experiment. All that he has advised aside from this is, in view of the assertions of such men as Messrs. Cook and Hasty, that the matter shall receive discussion and experimentation. It seems as though most of the writers wish the question decided *without* discussion. Is this wise? Remember that "he who can not reason is a fool; he who dare not is a coward; he who will not is a bigot."

The *Review* has no pet implement, race of bees, nor theory, to puff or boom. It tries honestly to find out which is best, and then make known the fact. In a line running across its title-page may be seen the following: "Devoted to the Interests of Honey-producers." To the best of my ability I am making the *Review* what it claims to be. The editor of Gleanings writes as though the *Review* were advocating the raising and sale of sugar honey. As I have already said, it is simply trying to find whether such a course is *advisable.* A correspondent wrote me a few days ago, "The *American Bee Journal* and Gleanings are here, and I see they contain not a word about sugar honey. Silence is one step more favorable than opposition; but it strikes me that silence on a redhot subject is not the way for a leading journal to remain a leading journal." Gleanings is certainly a leading journal, and it has now taken up the subject; but it says that it has done so only that it might oppose the *Review*, which it considers is taking a wrong course. The *Review* has no other object than to arrive at the truth.

I believe that GLEANINGS has the same object. Now let GLEANINGS show to the *Review* that the production and sale of sugar honey will be to the disadvantage of bee-keepers, and see how quickly the *Review* will oppose the practice. It desires most sincerely to work for the good of bee-keepers, and it will not work in the wrong direction after its errors are pointed out.

Mr. A. I. Root says that the practice of raising sugar honey is not new; that it has been tried before many times, and abandoned. He also asks why it has not been produced in times of scarcity. There are three reasons: First, it has heretofore been looked upon as adulteration; second, the price of sugar has been so high that it would not be profitable; third, bee-keepers have not had sufficient practice to enable them to manage the business in a successful manner. For instance, Mr. Root tells of his non success in feeding a barrel of sugar to *one colony*. I could not repress a smile as I read it. Almost one of the first things that I learned in feeding back was that bees, after being fed awhile, become fat and lazy, so to speak. They secreted large quantities of wax, but were of little value as storers of honey from the feeder. This matter of feeding back for the production of comb honey is really a distinct branch of bee-keeping, and one that must be learned before it can be successfully followed.

Some have objected to the raising of sugar honey on the ground that it will lower the price of honey. All seem to forget that the cost of sugar honey will always be that of floral honey plus the cost of the sugar and the trouble and expense of feeding. In the experiment that I made the present season, the $7.50 was only the cost of the sugar, a fact that the editor seemed to have overlooked. I might say, still farther, that the feeding was done after the flow from clover and basswood was past and the bees were hanging in masses on the outside of the hives. No honey was coming in. The greatest care was needed to prevent robbing. It may be questioned whether there would be sufficient profit in raising sugar honey to warrant its production. It is a fair question, and it was to settle just such questions that the discussion was started; but some say that even *discussion* is not advisable. Please show us why, and we will immediately drop it.

It may not be out of place here to call to mind the time when the editor of GLEANINGS advised the use of grape sugar for stimulative feeding. Public opinion was opposed to its use, and Mr. Root was obliged to give it up, although he believed that he was in the right. I defended him at the time, and used a barrel of the sugar, and would use it now if it were not that cane sugar is cheaper for that purpose. It may be that, while I believe that the course that I am now pursuing is right, public opinion may be so opposed to it that I shall be obliged to keep quiet on the subject; but there is one consolation—the truth and right will *eventually* prevail.

I can not more appropriately close than by thanking Ernest R. Root for his generous words in defense of my honor and integrity. They warmed my heart in a way that it has not been warmed in months. W. Z. HUTCHINSON.

Flint, Mich., Nov. 19.

[We are very glad to get this article as it shows more clearly Mr. Hutchinson's position; *i. e.*, that he did not intend that sugar comb honey should be sold as floral honey. We should have preferred to omit any footnote in reply; but as Mr. H. asks one or two questions we will try to make ourselves more clearly understood. We believe that the advocacy of sugar comb honey is ill advised—not because honest bee-keepers will make a bad use of the knowledge, but that their middle men customers, less scrupulous, perhaps, seeing that the honey is beautiful in appearance, would be sorely tempted to sell it as floral honey, and some would surely do it. If the transactions were between the bee-keeper and the consumer direct, and if we could be sure that the bee-keeper too were as conscientious as is friend Hutchinson, we would raise no objection. Right here we can not do better than to make a short extract from a private letter. The writer, whose name we withhold, says:

> It seems to me very unfortunate just at this time, when we are considering the best way to fight the adulteration of honey, that this subject of feeding sugar for honey should be brought up and almost indorsed by some of the leading bee-keepers of the land. It is a great pity, it seems to me, that any one should be so unwise as to inflict a discussion of sugar honey on us at this time.

To sum it all up, then, in a word, it is the fear of consequences that may result from such a discussion: First, the use that secular newspapers may make of it; second, the use that dishonest dealers may make of sugar-fed honey produced by honest bee-keepers.

The strength of Prof. Cook's position, and, in fact, Mr. Hutchinson's also, seems to be in the assumption that sugar-fed syrup when stored in the combs *is honey*. Prof. Cook may be right; but as good an authority as Thomas Wm. Cowan, of England, editor of the *British Bee Journal*, a scientist of the front rank, Chas. Dadant, and others, disagree quite emphatically with him, and as yet we can not regard the experiments made by Prof. Cook as being conclusive.

We had concluded that we would insert no more articles, either pro or con, on the subject; but among those we have received protesting against sugar honey is one from Mr. Herman F. Moore, attorney-at-law, Chicago. In former years Mr. Moore sold tons and tons of honey in some of our large cities, directly to consumers; in fact, we know of no one who has had more experience in selling honey to consumers direct, in large cities, than our friend Mr. Moore. He writes as follows:

> *Friend Root:*—I have been reading with some interest and some indignation the articles in recent numbers of some of the bee-journals on feeding sugar to make honey, and selling the product to the public as honey, or as what it really is, sugar syrup in combs. I do not believe that friend Hutchinson, with all his liberality in regard to enlarging the sphere of the bee keeper's activity and profits, would be willing also to justify any amount of lying or deception that would be necessary to sell his product. But this is, without any doubt, the logical result of such reasoning. Cotton-wool, lard-butter, wood nutmegs, sugar-honey, are, in their *very* name, a *lie*, and in their relation to the commercial world they are a fraud. Dealers in frauds *must* lie. Instance the hundreds of fraudulent shortlived schemes developed constantly to catch the unwary. The great public, and the individuals who compose it, are not perfect, by any means; but they demand now, more than ever before, honorable and true dealing in all things, and condemn for ever all who fall short. To illustrate, I ask one of my thousand customers, "Do you wish half a dozen quarts of honey on my next trip?"
>
> "Is it pure?"
> "Yes, sir." (Lie No. 1.)
> "What kind of honey is it?"
> "White-clover honey, sir." (Lie No. 2.)
> "Is this new honey?"
> "Yes, sir." (Lie No. 3.)
> "Is it real bee-honey?"
> "Yes, sir." (Lie No. 4.)
> "Do you feed sugar to your bees?"
> "No, sir." (Lie No. 5.)
> "Did you ever know of any one who did?"
> "No, sir." (Lie No. 6.)
> "How do you know this is pure honey?"
> "My own bees gathered it." (Lie No. 7.)

And so on indefinitely. All these questions, and many more, will be asked by the public in their effort to avoid getting something spurious. But suppose we wish to be honest with our trade, and tell the truth at all cost. We then converse thus:

"Mr. Smith, on my next trip I will deliver to any of my customers who desire it some nice sugar-syrup honey."

"What is that?"

"Oh! I have a new method of making honey now on *my* farm. I mix up a barrel of nice granulated sugar, A1 quality, with water, in a boiler; and, when dissolved and cool, I feed it to my 100 colonies of bees, and they build beautiful white combs, just like this, and fill them with the nice clear sugar syrup, and cap it over nicely, so you could not tell but the bees had gathered it from field flowers."

"I don't think I should like it to eat on my table, sir; but as I have bought of you for some years, and was always pleased, I'll try some; what are you going to ask for it?"

"Twenty-four cents a pound, sir, and that is cheap for such pretty white combs in 1-lb. sections."

"How much a pound did you pay for the sugar you fed your bees?"

"Oh! that has nothing at all to do with it, sir; the time of the bees is very valuable, and they really change it into honey in putting it into the combs. I buy the sugar cheap in large quantities, 4½ cts. per lb., but it costs lots to get it into the combs, and it costs lots to deliver it to my customers."

"Well, sir, I am sorry; but I will buy me 10 lbs. of granulated sugar in the morning for 50 cts., and add 5 lbs. of water, and make 15 lbs. of honey just as good as yours. By this I shall save the difference between 50 cts. and $3.60—a saving of $3.10 on 15 lbs. of honey; and my wife can make up enough on Saturday to last a week."

Here is another customer. "How d' do, Mr. Jones? Don't you want some of my nice sugar-syrup honey?"

"*Sugar! Syrup! Honey!* Get out of my store, you miserable cheat!"

"Why, Mr. Jones, didn't I always sell you nice honey?"

"No, sir. That first lot was nice—they always bring the first lot nice; it was white and clear, just like pure honey, but that next lot was brown, and tasted different. You told me there was a difference in honey, and I almost believed, bein's you was a pleasant feller, and spoke fair; but now I know it was a lie, for I allers knew all honey was alike; and you dare to offer me sugar-syrup honey! There's the door, and never come in here again. Git!"

There is great objection, in my opinion, to the use of the terms "digested nectar." "Digested" means "separated into nutritive and innutritious elements"—Webster. Any other meaning is unusual and rare. The use of this term in relation to honey would seem to indicate that the honey was swallowed by the bees, subjected to the action and juices of their digestive organs, and then —— up into the wax cells to be used as human food.

With all respect to our chemists, and in view of the serious mistakes they have at times made in essential matters, I am of the opinion that evaporation is the only chemical change honey undergoes in the cold or elsewhere. I should be glad to know the result of more searching investigation along this line.

The question of suppressing discussion and muzzling the public press is one that comes up at all times and in all lands. In our own free America (the best country on earth) this question has been settled in favor of absolute freedom, without regard to the injury it may do a particular person or class. The only remedy seems to be a suit for damages against the offending party; and, however much we as bee-keepers may deprecate any discussion in our bee-journals that may put our business in a bad light before the public, we have no remedy but this. Let each one who writes be sincere, and keep the best interests of bee-keepers at large in view, and deal with the public in a truthful, straightforward manner, not indicating that we have any skeletons to hide in dark closets. To the public, the fact of having a secret is of itself a suspicious circumstance, for it knows that right and truth need not fear the light. HERMAN F. MOORE.

Chicago, Ill., Nov. 21.

And another writes, whose name we are also at liberty to give, as follows:

Mr. Root:—Your notes on the sugar-honey question, p. 834, are right to the point. It is too bad for such men as Hutchinson, Cook, and others among the headlights, to even speak in favor of sugar honey, even *if* it were a fact that such might be made.

East Constable, N. Y. H. P. LANGDON.

As some of the criticisms may *seem* a little harsh, though not intended to be so, it were no more than fair that Prof. Cook and Mr. Hutchinson have an opportunity to reply if they so desire; after which we think it would be better to close the discussion.]

WINTER PASSAGEWAYS.

DOOLITTLE BELIEVES THAT WINTER PASSAGEWAYS ARE OF NO MATERIAL BENEFIT; CAUSE OF BEES DYING AWAY FROM THE CLUSTER.

A correspondent writes that he thinks that much of the loss of bees in winter comes from "chill, or the impression of cold on the bees occupying the outer ranges of comb during sudden changes from warm to very cold weather. Especially is the loss very considerable from this source where the comb passages are deficient, as in such case the detached clusters are unable readily to join the main cluster, and are not in sufficient numbers to maintain the requisite degree of heat, hence are lost. What is your opinion in this matter?"

In the above our correspondent brings up a subject which was discussed at length several years ago, when there was a "craze," as it were, for "winter passageways" through the combs. The argument then brought forth was, that, on the first cold spell, the cluster of bees was obliged to contract in order to maintain the necessary heat required; and in doing so, those occupying the outer ranges of comb, being in a sluggish state from the influence of the cold, failed to pass up and around the combs quick enough to keep up with the receding cluster, hence were left to perish with the cold. To obviate this loss, winter passageways were recommended through the center of the combs, made by boring holes through them, or by having a curled shaving suspended in each frame when the swarm was hived, so that the bees would of themselves leave such passageways when constructing comb. By this means the outer bees had direct communication with the cluster or main body of bees in the center of the hive, so that, even though partly stiffened with cold, they could easily recede so as to keep up with the main cluster. As the bees would, as a rule, fill up these passageways each summer, it was found to be quite a job to make them each fall, when some one proposed boring a hole in the side of the hive at the proper place, when, with a square stick, pointed at the end, which was to be slowly "wormed" (so as not to kill the bees) through to the opposite side of the hive, and thus make a passage through all the combs at once, thus making quite a saving of labor. Where such passageways are desired, probably there is no better way of securing them than this last, as the holes in all of my older hives testify that I used it on a large scale in the past, so I should know something about it. However, it was soon found that the bees would remain and die within half an inch of these holes in the combs; and as said holes were quite a damage to the combs (the bees filling them with comb of the drone size the next season), the practice of making such passageways has been generally given up, I believe. Some who still cling to the idea use what is known as the "Hill device" above the combs, as a sort of compromise, which is better, if any thing must be used; but after careful experiments with the above, the writer has discarded the whole of them, believing there is not enough gained to compensate for the trouble.

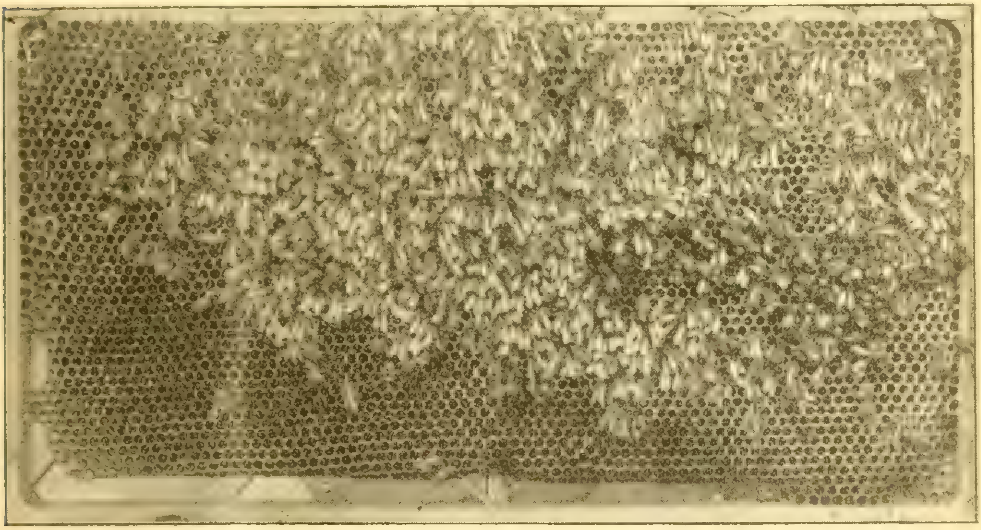
That the bees would die within an inch or less of such passageways, as spoken of above, and that such death of bees rarely occurred except during the first heavy freeze each fall, led me to investigate the matter closely, said investigation proving to my mind that these bees died from lack of vitality (or old age) rather than from the cause assigned. Usually we have cool cloudy weather from two to four weeks before the first severe cold, so that the old bees do not leave the hive to any extent to die, as they do all through the summer months, so that the number of dead bees dying from this cause would be considerable, providing none were chilled. But at this time of year, instead of dying at once these old bees seem to linger along for a chance to get out of the hive to die, and so gather in little clusters of two, three, six, or more, in a place, where they remain in a sluggish state till caught by extreme cold, or a chance is offered for a flight.

I well recollect one year when a fine warm day occurred immediately preceding the first very cold weather. The bees all flew nicely, and at evening I was surprised to find sluggish bees clinging to the board walks, fences, etc., all about, while close examination showed them all around on the grass and ground. This season I had the same thing occur, only to a far greater extent, as the most of the colonies with which I go into winter quarters are composed of united nuclei, hence had many old bees in the hives. After their flight the 14th of November (the 22d day of October being their last previous flight), I found little knots of bees all about on the corners of the hives, on the grass, ground, and walks, to an extent beyond what I ever saw before. When I saw these knots of bees several years ago, I believed then, as I do now, that I had discovered the real cause of the matter, and, sure enough, no little clusters of dead bees were to be found about in the hive that winter, nor do I think there will be this winter, but all were clustered compactly for winter without passageways. Then, again, I have often noticed that these little knots of bees were left to die only with the first contraction of the cluster, as afterward no gain of dead bees seemed to be made among the combs with each expansion and contraction, while the advocates of these winter passageways state that this loss is kept up every time it warms up and turns cold again, all winter.

There is one way to prove all these things; and that is, by setting apart a certain number of colonies and making passageways through the combs, while another number like the first are left without. A careful comparison of the two lots, during the *whole* winter, will tell who is correct in this matter.

Borodino, N. Y., Nov. 17. G. M. DOOLITTLE.

[Mr. Doolittle may be and probably is right regarding the general cause of small knots of bees dying away from the cluster. Some three or four years ago, in a chaff hive a whole colony died on the combs. It was a very cold winter, and the bees probably, during a severe "cold snap," starved to death, although there was plenty of good sealed sugar stores within two inches of the cluster. It was a nice large colony, and the bees were scattered over the combs as natural as life. One could scarcely believe them to be dead, so natural were they. It occurred to us that we could secure a good picture, because, you know, they would "hold still;" but the result is not as satisfactory as we expected to get. A glance at the picture, which has not heretofore been printed, shows no honey in the comb, but there were stores, and plenty of them, in the next two combs. Evidently these bees died of starvation. No doubt many of our readers, in outdoor wintering, have witnessed the same. In all our experience we have scarcely one out of 200 colonies die in this way.]


BEES THAT DIED ON A COMB DURING WINTER.

THE WINTERING PROBLEM (?) IN CALIFORNIA.

WINTER FLORA FOR BEES—WHAT, AND WHEN IT OPENS UP.

In most of the States of our Union the wintering problem is the most serious one which confronts the bee-keeper; but in the warm climate of California and of the Gulf States, "wintering" does not rise to the dignity of a problem. Even in these places, however, there are some precautions to be taken and some things to be done for our little pets ere they enter upon the season of rain, frosts, and enforced idleness.

The first thing to be done is, to see that each colony has an abundance of honey. Twenty pounds is plenty, not only for wintering but for springing; and where the supers are taken off, some pounds less than that amount will be sufficient.

The next requisite is, to see that the hive is a snug one; that is, that there are no chinks by which cold air can enter and warm air leave the hive, especially near the top; then reduce the entrance so that only one or two bees can go in at a time, and all the precautions necessary for safe wintering have been taken. Very simple; yet, for lack of them, thousands of colonies are lost every winter.

Most apiaries run for extracted honey are left with the supers on during the winter. My experience is, that it is much better to take them off, as the stocks build up faster in the spring, and swarm earlier. I leave the extracting-combs in the supers, spreading them so that no two touch, piling the supers three or four high, placing a tight cover over them to keep out the rain, and then I pile on rocks to hold the whole fast against the winds. There is no trouble from moths until April, at which time I replace the supers on the hive. Mice, however, will ruin the combs if they can get at them.

My estimate of twenty pounds of honey, or even less, for wintering, may seem too small a quantity to those who have read in the text-books that thirty pounds is about the right amount. But remember that the instructions given in the books are for northern climates, where for six or seven months the bees will have no other food than that thirty pounds. But here in California our bees can gather honey every month in the year, if the weather is favorable. In localities where manzanita is plentiful I have seen enough gathered from that source in January to make quite a showing in the hive; and the fillaree (spelled incorrectly, but I believe in Anglicizing all foreign words) in all parts of California, excepting the deserts and snow-clad mountain-tops, furnishes considerable honey by Feb. 15th; and when near the sea, or in other warm localities, some two weeks earlier than this.

With me, November and December are the only months in which the bees gather practically nothing; but it may be different with apiaries located but a few miles away; for in this mountainous country the climate, and, consequently, the vegetation, differ with the altitudes. Nearness to the ocean has also its effects on the climate. At the town of San Buenaventura, which overlooks the Pacific, winters in which any frost is noticeable are the exception, and the busy little bee gathers honey all winter long from the strawberry-plants blossoming in the Chinamen's truck-gardens. Again, at Cowhanger Pass (a corruption of the Spanish word "Cahuenga," pronounced *Kah-wain-gah*), which is high up in the mountains, but located in what scientists call the Thermal Belt, there is never frost, and tomato-vines grow with the luxuriance of Jack's beanstalk—an historical plant well known to the youths of our land. I have read of vines of this kind (tomatoes, not beans) which had attained to the length of 80 feet; but then, one must not believe every thing he reads about California. It is a great country, no doubt, and excels in many things, the least of which are not its liars. But I am wandering. From winter honey-plants to tomato-vines and prevaricators is quite a jump. From a lowly bee-hive to the top of a eucalyptus or Australian gum tree is also a good jump, but one which the little bees take, and in midwinter too, for I have heard them humming very numerously among its blossoms on Christmas day.

The pepper-tree is worked upon in winter as well as in summer. In fact, they are liable to burst forth into bloom almost any time, in which peculiarity they are the counterpart of the guatemote (a shrub growing in damp ground), on whose blossoms I see my bees are at work today, and on which they will continue to work every favorable day until spring, with blossoms more to the bees' liking, causes the guatemote to be neglected. I have just made a little circuit of about 200 feet around my house, and in that little space on the 5th day of November I find my bees working on six different kinds of flowers. I doubt, though, whether they are getting enough from them to live on, as they are very keen at robbing, only yesterday "cleaning out" a weak stock.

SPELLING OF SPANISH WORDS.

Now in defense of my incorrect spelling of Spanish words. Most of the names of places here are in that language, and, besides which, the Americans have adopted a great many other words, such as *vaquero* (pronounced *vah-kay-ro*, meaning a herder), and *chemescal* (a bush), and which they pronounce most abominably. For instance, *vaquero*, the Americans pronounce *buck-kai-ro*, and *chemescal* they call *jimmy-sal*. Cowhanger, the place mentioned as where there is no frost, is spelled Cahuenga, as already observed. Now, I maintain that, if we are not able to give to these words the Spanish twang, we should spell them according to our pronunciation, just as John Bull has transformed the celebrated London driveway from "Route en Roi" (King's Road) into Rotten Row.

Wm. G. Hewes.

Newhall, Los Angeles Co., Cal., Nov. 5, 1892.

[Yes, yes, by all means Anglicize those hard Spanish names.

Later.—After reading the above we were inclined to indorse Mr. Hewes' suggestions, and did so in the footnote as above; but our proof-reader, who understands Spanish, takes issue with us both, in some respects, in this pleasant and facetious manner. His points are so well taken, after all, that we shall have to conclude it were better to leave the names as they are, for the most part.]

The suggestions of Mr. Hewes in regard to "Anglicizing" Spanish names in California are very ill advised. If the people there see fit to change the word Conejo (meaning rabbit or jack-rabbit) to Jacksburrow, and have it so spelled in the Postal Guide, as the junior editor means above, no objection can be raised; but to ask the postal authorities to deliver a letter directed to Cowhanger when Cahuenga (Kah-*wain*-gah) is the official name, is unreasonable. If it is necessary to change foreign words, why have we not found it out in using Indian names for nearly half the States in the Union, besides cities, lakes, rivers, etc., by the thousand? How would it do if the people of Michigan were to conclude that they can not say Kalamazoo, for instance, and twist the word to Kalamityhowler? or Dowagiac to Doodenwhack? or Chicago (meaning a polecat in Indian) to Shecowgo, in honor of the historic cow whose potent kick laid that city in ashes? Mr. Hewes speaks of the Spanish language as having a "twang." That is a mistake. It has no twang. For beauty of sound, it probably has no rival in the world, except Italian. It has no sound that we do not have in English, and it is spelled in a purely phonetic manner — Filadelfia, for instance. It has but five vowels—*a, e, i, o, u*, pronounced as if they represented the English letters *ah, a, e,* *o, oo.* The letter Y has the sound of I. This enables a pupil to learn to read it quite well in one lesson, while a foreigner can learn ours only by studying a word at a time, and that, too, by the help of a teacher. It is very undesirable to change the names in California, except in some obscure instances. Why would its chief city sound any better if called Saint Francis, or the capital if spelled Sacrament? San Buena Ventura means Good Luck personified into a saint; San Jacinto means St. Hyacinth; San Diego means St. James, or Holy Jim as some might "Anglicize" it. The names in California, New Mexico, and Arizona, for one who understands Spanish, are almost as good as a book of travels in those States; and even in English, how much is contained in such words as Good Hope, Cape Desolation, Cape Farewell, Iceland, Greenland, etc.! A very valuable feature could be added to our schools by teaching the pupils to pronounce the names found in foreign countries. Some of them look hard, and can not be pronounced with our alphabet; but by knowing how, the words become as soft and musical as—Cowhanger, for instance. Let the old names found in the United States remain as they are, to show how the nations of the earth have brought their treasures into it. The Spanish have left an air of romance in that part of our land which they settled, and it seems too bad to dispel that romance by the introduction of our everlasting "centers," "villes," "burys," etc. The English language grows fat by browsing on all others.

CARDINAL FLOWER.

PROF. COOK REPLIES TO W. E. GOULD'S CRITICISM ON PAGE 800.

I am glad that Mr. Gould has corrected me in the matter of the cardinal flower. From the reports I had, I supposed there could be no question but that the bees did secure honey from it. I did not see, from the data which I received from apparently the most reliable authority, that there could be any doubt, and so I wrote as I did. I am satisfied that Mr. Gould is correct, and I take his reproof very kindly. We should be very careful, before we generalize, that our facts *are* facts. The best of men make mistakes, and I shall be more than ever careful henceforth that reported facts are genuine. Again I thank Mr. Gould.

OAK-GALLS, OR OAK-APPLES.

Mr. Allen Bartow, Milan, O., sends me several oak-galls, and the gall-flies which cause them. He says that the insects are very new and singular to him. He requests that I explain their life economy through GLEANINGS. The four-winged gall-flies belong to the same great order of insects that contains our bees—the *Hymenoptera*. They belong to the gall-fly family, or *Cynipidæ*. The cynips are usually black, short, four-winged flies, with a very obtuse abdomen. This looks as if it had been pushed up from behind, and is like that of the bees, wasps, ants, and parasitic hymenoptera, in that it ends in a sting, or ovipositor. As these flies lay their eggs they irritate the leaf or stem, and this causes an extra flow of sap to the place, and the result is excessive growth, or the galls, which are familiar to all. These galls surround the eggs, or larvæ after the eggs hatch, and thus the gall serves both as home and food for the immature or larval gall-fly. We may say that the gall is simply increased growth. If the stem or leaf is hairy, the gall will very likely be spinous. Some of the galls are very smooth and beautiful. They are found mostly on oak-trees, though not exclusively, as the rose cynip infests the rose-bush, and causes galls on it. Odd as it seems, each fly produces a peculiar gall, so that the galls are as distinctive as are the flies that produce them. Why the irritating puncture of one fly should produce one kind of gall, and that of another something different, is not easily explained. May be the poison differs in quality or quantity, and possibly the wound may vary in extent, and so control the size and character of the gall. We often raise not only the gall-flies from the galls, but also guest-flies. In this case a sort of tramp fly takes advantage of the gall and lays its eggs in it, and its young also feeds on the gall. These guest-flies are nearly as numerous as are the gall-flies. Sometimes the males are in different kinds of galls from the females. In many cases no males have been found. It may be that some of these species are parthenogenetic, like plant-lice and our drone-bees—produced without males and sperm-cells. It is easy to secure the gall-flies. The only precaution is, not to pick the galls from the tree till the larvæ are mature, else the galls will dry up and the larval gall-flies will starve.

WALKING-STICKS.

I have received some walking-sticks from Mr. C. L. Parker, Mentone, Ala. These are well named, as they look like sticks with stick-like legs. We have one in the north—*Diapperomera femorata* —which is green when young, and brown when mature. I was specially glad to receive these from Mr. Parker, as they were new to our collection. I am not sure of the species, but I think it may be *Anisomorpha buprestoides*. The male is very much smaller than the female. They were mating as I took them from the box in which they came. There were also eggs in the box. They live on leaves and twigs, which they so closely mimic that it is hard to find them. They feed on the foliage, but are rarely so abundant as to do serious harm. They drop their eggs from the trees in which they dwell, and, when very abundant, the dropping eggs make one think of a rain or hail storm. They belong to the same order of insects that contains the crickets, locusts, and grasshoppers.

A. J. COOK.

Agricultural College.

THAT SLUMGUM.

SOME INTERESTING EXPERIMENTS WITH THE SOLAR WAX-EXTRACTOR; HOW TO GET ALL OF THE WAX OUT OF THE SLUMGUM.

I read with interest H. R. Boardman's article on p. 771, also the offer you make in your footnote. I want you to make your test thorough. Surely much wax remains in the refuse when it makes so good a fire. Sometimes, however, its burning quality might come from propolis, which is almost equal to wax for fuel.

Last spring we had a lot of stock to transfer, both with and without frames; also a like lot of hives in which the bees winter-killed. In all these the honey was from one-fourth to three-fourths candied. Nearly all of them were old combs, some very old, and many with pollen. Then the query was, how to get this separated into feed honey, wax, and slumgum. We could not feed the honey by letting the bees carry it out of the combs, for they would waste the bulk of the candied honey by "kicking it out of doors." The honey thus wasted would be worth more than the combs or wax. To render by steam or water applied directly would waste much honey; so dry heat, by means of the solar wax-extractor, seemed the best way to do it.

My heart was set on having a jumbo solar (it's set yet, only more so than before); so, early in April I bought some double-strength glass, cut from broken store-windows, showcases, and such. It cost me $2.50 at the price of single-strength glass, and made a sash about 2 ft. 10 in. x 6 ft. 6 in., and I very soon had a solar wax-extractor at work in the yard. The thing is built on wheels, two at one end and one at the other, one of them being pivoted like a bed-caster. This makes it convenient to pull about, and to wheel into the honey-house to unload and reload when robbers are bad. From April to October that extractor has been at work, and has turned out over 300 lbs. of wax and over 1000 lbs. of feed honey that was mostly candied in the combs. The wax is No. 1 in quality.

After accumulating two or three barrels of the refuse I experimented on it. Some was soaked four weeks in water, and cooked by steam applied direct. Some was soaked several days in a mixture of water and concentrated lye, so strong it was a slick, soapy mass, and it was cooked by steam applied direct, with the mass in a bran-sack. I used steam under pressure, and turned a jet of steam into the center of the mass. I tried first by having a false bottom made of slats about six inches from the bottom of the barrel, and the sack in this, so the wax would drip below and run out at the bottom. This brought out some wax, but left plenty to make a good fire. I then plugged the hole at the bottom of the barrel, and filled the barrel with water, so that the whole mass was submerged. I then applied the steam-jet as before—that is, to the center of the mass in the sack. The jet was applied for nearly half a day, with stirring, turning, and prodding the sack. As fast as wax would accumulate on the water it was skimmed off, until it seemed that scarcely a bit could remain in that sack. I then took the sack out. At first it contained about four bushels of the slumgum; but now it was reduced by washing out pollen, etc., until it was about a bushel. I then put it under moderate pressure. This caused the wax to flow "from every pore," resulting in one or two pounds more of wax. I then again put the whole mass into cold water, when the wax appeared in small grains throughout the whole mass, about as butter does just as it begins to gather when being churned. I now have a barrel of this refuse soaking in lye-water, and will experiment to see what wax can be gotten from it.

The refuse used in these experiments was the result of rendering over 200 lbs. of wax, using mostly those old combs and hive-scrapings, etc. The result was something over 20 lbs. of wax that was much darker than the first, as gotten by solar heat. Both because we had to keep the solar extractor going in order to get our comb all rendered, and because we expected to subject the refuse to the second process, it was not as thoroughly drained in the solar as it might have been. However, the wax received from it paid about $2.00 a day for the time engaged in putting it through the process.

I am confident that neither the solar nor steam process comes near getting the wax all out. Old combs, pollen-filled, together with dead bees and such, make such a mass of refuse that a great amount of wax is retained in it, in spite of all my efforts so far to remove it. I find, however, that we need a large solar extractor, and then not load it too heavy. If the refuse be drawn back to the upper end, and spread out thinly on a rather steep incline, and left there a few days in the hottest weather, and for about four weeks when not so warm, very much wax will eventually be drained out that can not be gotten out in two or three days' time. If the solar extractor be large enough, and the stuff left in it long enough, I think more wax will be extracted than by steam or water. The feed honey alone that can be obtained by using a solar extractor abundantly pays for the instrument, besides the other points of advantage. But what I want to know is an equally cheap method of getting the rest of that wax out of the slumgum.
R. C. Aikin.

Loveland, Col., Nov. 7, 1892.

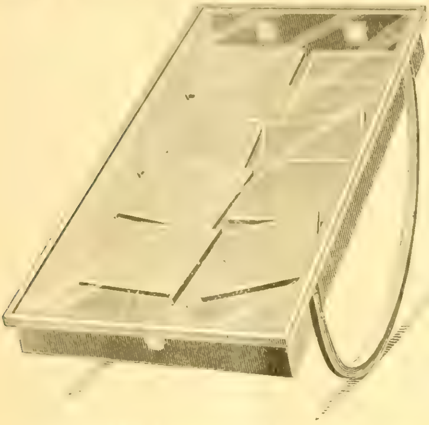
[Your experiments are interesting and valuable, and we believe the results at which you arrived are correct, as they confirm to a very great extent our own. From old tough and black combs it is exceedingly hard to get the wax all out. The Dadants recommend first pulverizing them during cold freezing weather. At that time, being very brittle, they will work up very fine. Now, then, the best way to render this, so far as we know, is to spread this pulverized comb thinly over the bottom of a large solar wax-extractor. Allow it to stand that way for several days in the hot sun, stirring it occasionally in the mean time, so as to present new surfaces to the sun. After it seems to have drained out all the wax there is in the slumgum, clean out the extractor, put the contents into the slumgum box or barrel, and be sure to cover it tightly, because the moth-worms will very soon begin work on it. After a barrel or so has accumulated, put it into a cheese-cloth (or, preferably, burlap) bag, as large as can conveniently be put into a receptacle in which it is to be further treated with hot water slightly acidulated with sulphuric acid. Get the water to boiling, and with a stick punch the sack under water; and as the wax rises, skim it off on the surface of the water. Last of all, remove the sack with its contents from the boiling water; quickly place it in a press; squeeze it, putting on all the pressure possible, and considerably more wax will ooze out in small pellets.

The solar wax-extractor will take out perhaps nine-tenths of the wax; but there is yet left that tenth, which must be removed, as far as possible, by the agency of hot water, sulphuric acid, and the wax-press. Even then there is a little left that may be removed by continually working at it, but it is a question whether it is worth the time consumed in doing it.

THE RESULT OF THE EXPERIMENT ON THE BOARDMAN SLUMGUM.

Referring to the slumgum of H. R. Boardman, and our challenge to him to send on a couple of bushels and we would prove there was wax it, we have this to say: He sent on the slumgum, and by the scales it weighed about 25 lbs. We put it through the "mill"—that is, the sulphuric-acid treatment—in connection with the wax-press. Well, how much wax do you think we secured? *Just one pound!* We scarcely know whether Mr. Boardman or ourselves have the better of the argument. He may be surprised that we got so much, and on the other hand we are surely disappointed in getting no more. On this basis we should get about 3 lbs. of virgin wax from perhaps a barrel of Mr. Boardman's slumgum. If there is one thing that we have proven, it is that Mr. Boardman's large solar wax-extractors do the work very much more thoroughly than we had supposed; and we can account for the stuff making such good fuel, only on the ground that it must have contained a large amount of propolis, as Mr. Aikin suggests above. It is well known that propolis melts at a much higher temperature than wax, and it is possible that the heat of the solar wax-extractor is not sufficient to have any perceptible effect on it. It is, therefore, left nicely distributed through the refuse.

Some time ago we illustrated the Boardman solar wax-extractor. As many of our old readers have possibly forgotten what it is like, and some of our new ones would like to see it too, we present the engraving again from p. 50, Jan. 15, 1891. A description will hardly be necessary.



BOARDMAN'S SOLAR WAX-EXTRACTOR.

We might mention that the curved runners not only make the machine portable, but permit of its being tilted at any angle to the sun.

We should like to hear from others who have had experience with the solar wax-extractor, and particularly as to how to get every particle of wax out of the refuse and the cocoons. This matter is not so valuable to the foundation-maker as it is to those who render out their old combs for the wax which they send to the manufacturer.]

BASSWOOD AND ITS PROPAGATION.

WHY ITS SEEDS DO NOT GROW.

A few years after coming to this country, from the old continent, I sowed seeds of basswood in order to get plants and trees, when of suitable size, for my near neighbors, to be planted on the roads along their farms. Most of the roads in France are lined with trees such as basswood, elms, walnuts, ashes, etc.; besides, there is, in the city where I was educated, a promenade about two miles long, with four rows of lindens, of which the trunks are three feet in diameter or more. About 60 years ago I asked my grandfather how old those trees were, adding that, probably, he had seen them planted. He answered, "When I was of your age they seemed about as large as they are now." So these basswoods were planted several hundred years ago.

The remembrance of the beautiful foliage, delicious perfume, and agreeable shade of these rows of trees, together with the prospect of increasing the honey harvest, had induced me to make the expense of raising these lindens; but not one seed in one hundred germinated. As I had sown them in spring, I thought that the seeds were too dry, and so the next summer I sowed seeds just gathered. These did not succeed any better than the first ones. Then the following summer I broke some seeds to find, if possible, the cause of my failure. Nearly every one was eaten inside by worms. About two years ago Mr. Ed. Bertrand, editor of the *Revue Internationale*, wrote me that one of his friends desired to get a few pounds of American basswood seeds to raise trees, and distribute them among his neighbors. I sent him a few hundred seeds only, to show the conditions which prevented the American basswood from growing from seeds. As these seeds are eaten by small insects, it would proobably be possible to kill them before laying, or to prevent them from laying by spraying London purple or other insecticides on the trees just after their blooming.

I hope that Mr. L. C. Clark, or some other bee-keeper, will try this spraying, and report in GLEANINGS the results obtained.

CHAS. DADANT.

Hamilton, Ill., Nov. 21, 1892.

RAMBLE NO. 73.

ADVICE ABOUT EMIGRATING TO CALIFORNIA; QUESTIONS ANSWERED.

Since I came to this beautiful southland, the land of sunshine and flowers, and the home of the fragrant rose, where the rich green leaves of the orange and the lemon never wither, and their blossoms fill the air with fragrance, the hive with honey, and the fruit gives health to the body and inspiration to the soul; and especially since A. I. Root and I have written about California bee-keeping, I have not been flooded with letters of inquiry, but have received as many as three in one day, and usually two or three a week, which shows that there is something of an interest in relation to this State as a country in which to gain a livelihood, and perhaps wealth in this world's goods and a hope for future bliss.

This ramble, then, is written for the purpose of answering a multitude of past, present, and future questions; and all of these persons, either young or old, who have a desire to emigrate to California will please read this Ramble ten times, feel their pulse, and say, if they can, "*No tengo nada*" (nothing is the matter with me, as the Spanish say).

In the first place, California consists of a large area of land and not a great deal of visible water. Much of the land hangs up edgewise, and well up toward the heavens. There is, however, enough rich level and rolling land and charming valleys to support an immense population. Water is made visible by tapping the mountains and valleys, and the effect is magical, for the barren desert is made to blossom with vegetable life. As to climate, there is no country in the world where one can select just what suits him as well as in California. If you delight in a temperature of 115° in the shade, many of the interior towns will fill the bill during the summer months. If you prefer arctic breaths, climb the mountains into the regions of perpetual snow. In fact, any grade of temperature can be selected, and that is the boast of California.

The State is bounded on the west by the Pacific Ocean. I mention this, because many seem to forget it; and when they get here they sit down upon the shore and shed tears over the overwhelming fact that this is the end of westward emigration. In a great many instances, instead of taking a rational view of the situation, they turn around and berate all California.

California is called the Golden State, and it deserves the name. There have been rich discoveries of the precious metals, and sudden fortunes have been made; but remember that, alongside the lucky man, there have been a thousand who have toiled all their lives, and then died poor. Remember that even the man who first discovered gold, and picked it up by the handfuls, died a poor man; therefore, my friend, don't let the alluring idea get into your head, as it does into many, that you can pick up gold in the Golden State; for, go where you will, in valley or remote mountain, you will find the mark of the prospector's pick or shovel. The ground has been well inspected. There are yet undiscovered gold-mines, but the novice will hardly find them.

The cultivation of the soil, and making the various products grow, is at present producing more gold for California than are her mines of yellow metal. If you wish to enter the ranks of this class of workers, I will answer the questions that have been directed to me, and thereby try to aid you in a decision for future action.

The majority of my questioners are bee-keepers, and are not only anxious to keep bees but to secure a fruit-farm in connection with it. There are ranches where, in some cases, bees and fruit are kept; but the cases are exceptional. The fruit-ranch destroys all wild flowers that produce the large yields of honey; and unless the ranch is well back in the foothills, where bees from it can reach the sage and other wild flowers, the apiary will have to be planted, as it usually is, in some remote place, to secure the best results; therefore, to keep bees and run a fruit-ranch will necessitate two locations. Continuous employment can not be secured on a bee-ranch. The bees need but little attention for seven or eight months. In the other four or five the main work is done, and men and boys are then hired. Some bee-keepers run their help in gangs, going from one apiary to another during the extracting season. Others put a man in an apiary, and expect him to be enough of a hustler to care for it. The pay for such a helper is all the way from $25 to $50 a month. At $25 a month he is boarded; but at $50 he boards himself.

There are but few chances to work apiaries on shares. Where they can be found, the right man can do better than to work by the month. Bees and apiaries are as salable property as horses or cattle, and many apiaries change hands every season. Above all other plans, I would advise those who come here to do so prepared to purchase. Easy terms are usually granted, and a small apiary in a good season can be increased to quite a large one. An experienced bee-keeper can easily double his number, while many have increased ten to one hundred—remember, in a good season. The time to buy is from January to March. Colonies can be purchased, all the way from $1.00 to $5.00; the average price is, perhaps, $3.00. The $1.00 colonies are in nondescript boxes. The $5.00 colonies are in good movable-frame hives. Considering every phase of the business, I know of nothing else that can be started into with so small a capital, and which gives so sure and quick returns as bee-keeping. The above does not apply to a person who never managed bees, but to a man of experience, and a moderately good season.

Southern California has been the center of the bee-industry for several years; but in the northern counties there are many splendid localities for bees that are as yet unoccupied. □

Next to the production of honey, information in relation to fruit-ranches is sought. Fruit-ranches are usually sold in 5, 10, and 20 acre lots; the average is about 10 acres. The chief fruit here is the orange, with a sprinkling of all other fruits. A fruit-ranch of any kind, except grapes and small fruits, is several years getting into bearing. Raisin grapes, perhaps, bring the quickest and most permanent returns. These fruit-ranches can be purchased on easy payments; but the purchaser should be careful to have some money ahead, or some business to earn money (an apiary, for instance), or he may wake up some morning in arrears, and his ranch, with what improvements he has put upon it, is taken possession of again by the Land & Water Company. Many such episodes happen every year.

Fruit-lands unimproved, but under irrigation, are held at from $100 to $350 per acre. Some companies give a perpetual water-right, while others collect a tax for the number of inches of water used annually. Improved lands with bearing orchards are held at $1000, and even up to $3000 an acre. A twelve-year-old orange-orchard in full bearing will give a profit of $1000 an acre.

The style of houses that people live in here is of great variety. Just now around Redlands there are scores of tents. During a greater portion of the year a tent will be comfortable. Some prefer to sleep outdoors, and gain health in so doing. A tent is preferable to many of the shanties that are occupied. Almost any kind of covering will do until the rainy season commences. In December and January the cold, though not below 24° above zero, takes hold quite severely. Rain is not continuous, as many suppose, but it comes down freely for a few days, then there is a week or more of beautiful weather; so, ordinarily, what is called the "rainy season" is not any more so than Eastern people have all the time.

Lumber is more expensive than in the East, and a good house will, therefore, be quite a luxury. In this portion of the State, wood and coal are scarce and dear. Oak wood is $8.00 a cord; chemise roots, $5.00 a load; soft cottonwood, $3.00 a cord; choyo, a species of cactus, and sunflower-stalks, are gathered for fuel.

The cost of living here is more than in the East. Good board is 25 cts. a meal, or $4.00 a week; a furnished room $4.00 to $10.00 a month. A person can board himself for about $2.00 a week, and so thousands "bach" it on this coast, and live well, and have more luxuries and greater variety than he gets in a dining-hall.

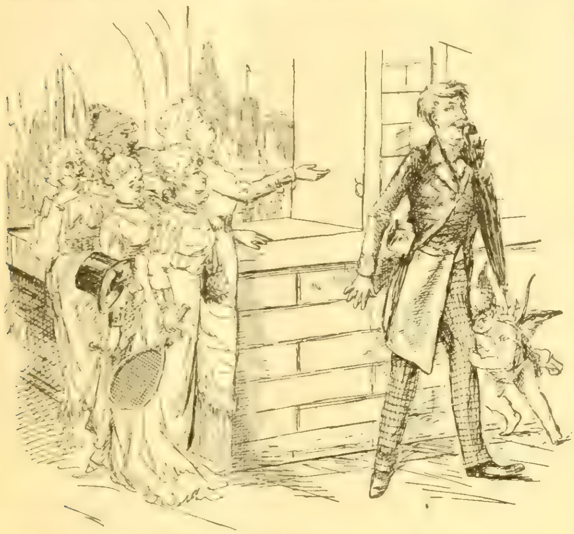
From the number of idle men about our towns, I doubt whether permanent employment can be had by the year on a ranch or in the trades. There are times when everybody is busy; then come the idle days. There is but little done in the manufacturing line, and the surplus labor is not absorbed. A new comer has not so good a chance to get work as one who has been here a year and has made something of a reputation. Wages by the day is usually $1.50 to $2.00. The laborer finds himself, except his dinner. On the large ranches, away from towns, he is boarded on the ranch, and sleeps as described in Ramble 67. The trades are quite full, and the carpenter and bricklayer complain that there are too many for profit. Still, I have heard of no starvation or want in that quarter. Ready-made clothing can be purchased here nearly if not quite as cheap as in the East, while clothing made to order will cost more.

A person in Kansas asks, "Shall I bring my team?" It would, perhaps, pay a man no further east than Kansas to bring the team if it is worth, say, $300. Good horses are in demand, and teamwork is sought after. Very good furniture can be purchased here at second-hand stores, at reasonable rates.

In relation to shipping bees from the East, it would hardly pay unless a car is chartered for other things, and then a few colonies of a choice strain could be put in as well as not. Ten colonies, say, and a lot of hives in the flat, would give an outfit that could soon be increased to a fair apiary. Still, it is a question whether it would pay to ship them. Government land can be found, but it is in remote districts, and not subject to irrigation without much labor to develop water.

The educational advantages are good unless a settlement is made in a remote portion of the State. California provides fine—yes, elegant—school-buildings. The one described in the last Ramble is a fair sample. Care is also taken for the proper qualification of the teacher. The standard of excellence, I think, is higher than in many Eastern States, and the pay they receive is proportionately higher.

Religious work is very active all over this coast. All of the orthodox churches are represented, and some that are not so orthodox. In nearly every town of 3000 population or over. the Y. M. C. A. is an active force. The Salvation Army is aggressive and progressive. In California is exercised the greatest amount of toleration, religious and otherwise. We go to church, and, while listening to the sermon, perhaps the musical notes of a hand-saw or the staccato of a hammer is heard in the back yard of a man who is not so conscientious about the use of the Sabbath as we are. Or there may be wafted to your ears the distant report of a gun. This man seeks his recreation on Sunday in hunting rabbits or quail. No one seems to have much concern as to how his neighbor spends the day. He is a law unto himself in that respect. and that's what we call toleration—something the world has been trying to learn for the past several thousand years, and isn't the world better to-day under this broad spirit than under the iron heel of persecution, and the "thou shalt not" of creed?



RAMBLER AT THE WORLD'S FAIR: "BARKIS IS WILLIN'."

I have given the above facts in relation to this portion of California. I have no advice to give, but am desirous for every would be emigrant to act upon his own judgment. I would not advise parties to tear themselves away from passably good circumstances at a sacrifice; for in all such cases there is more or less hardship and some disappointments to endure in a new field of action. Our bright skies are somewhat shaded with sandstorms; and during the dry months the dust is "numerous;" but when it comes to a choice between mud and dust, dust does not afflict when we ride against the wind; but mud we have to take, wind or no wind. It is an excellent plan to first come and see the country, and find a location. The family can then be brought out. With a little money, profitable investments are always open in these new growing towns; and a tract purchased now will, in a very few years, double in value. A journey, however brief, to this coast, will enlarge your ideas in relation to the great and glorious country of which you are a citizen. If you have but a latent pride in your nation as you have seen it in the East, under these skies what is latent will be fanned into a patriotic flame, and the old stars and stripes will ever after have a new meaning to you, as they now also have to the RAMBLER.

[Our readers will notice that this article of Rambler's is conspicuous on account of the absence of any engravings accompanying it. The Rambler thought it might be a pleasant change to the readers; but the more we thought of it, the more we felt impressed that the usual Ramble would look lonesome. Well, it so happened that our artist came to our rescue. He was thinking how lonesome Rambler must be off on the ranch keeping house all by himself; and as his mind turned toward the World's Fair, he began to speculate as to whether the Rambler would be present. A picture came before his mind; and, of course, being an artist, it naturally found expression in material form, and *we* couldn't resist the temptation to place it before our readers, for you know the Rambler is a single man.

It seems that Dr. Miller and A. I. R. have been rather worrying because Rambler has been dwelling in single blessedness. Perhaps this will give them a gleam of hope. The Rambler has given us no authority to speculate as to his future prospects; and if the picture above will not represent the true status he must lay all the blame upon our artist.]

BEE PARALYSIS.

EXPERIMENTS IN REGARD TO THIS DISEASE.

During the early part of the season, Mr. Ford, as below, purchased a colony of bees with a queen. Bee paralysis subsequently developed, and he wrote us, asking for particulars for treatment. We advised him to try the salt cure. He did so, but it seemed to have no effect, and the bees continued to grow worse and worse. It seemed to be a peculiarly aggravated case of the disease, and we desired our correspondent to keep us fully informed.

Desiring to experiment further with my diseased bees, and thinking there might be some infection in the combs or hive, I transferred the colony a few days since to a new hive, giving them new comb and a frame of sealed comb from a healthy colony. They are dying at a more rapid rate than before. Robbers have begun to assail the diseased colonies, and I think that they will soon clean them out in spite of all that I can do.

A friend has suggested that the disease might be foul brood. I find that the few cells of brood left are apparently healthy, and the combs appear normal in every particular, so far as I can see. My experience will tend to elucidate the course to be pursued by the apiarist in handling colonies affected with bee paralysis hereafter. If the disease is infectious, at least one-third of my colonies will get it, through the agency of the robbers, who are now plundering the diseased colony not transferred. I have come to the same conclusion reached by you—that bee paralysis is an affection resulting from some infirmity in the queen, or some hereditary disease. Is it possible that it may result from breeding from the same stock for a long time? When I began to Italianize my apiary I resolved to buy my queens from as many breeders as I could conveniently, for the express purpose of securing ultimately the strongest vitality in my new stock by the admixture of many strains. I do not know whether there is any thing in the notion or not.

I believe the disease is not contagious or infectious, and that it does not result from the food the bees take. If I am mistaken on these points I shall probably lose most of my bees. I would have removed the diseased colonies, but I thought that the infection, if there was any, would be carried by the stray bees that would seek refuge in other colonies, their hive being removed. T. S. Ford.

Columbia, Miss., Nov. 5.

[We have never discovered that the disease is contagious. It seems to be wholly hereditary, and, so far as we can remember, we have put healthy colonies into hives formerly occupied by bees affected with bee-paralysis, with no subsequent bad results on the healthy bees. However, it is possible that, in aggravated cases, such hives might transmit the disease, and we hope our correspondent will keep us informed as to the result. We suggest, as a last resort, that he remove the queen and introduce a healthy one. If the trouble is wholly hereditary, this ought to cure the trouble; at least it has done so in our own yards so far.

Since writing the above, the following has come to hand, giving the other side of the salt-cure question.]

THE SALT REMEDY A SUCCESS.

Friend Root:—Permit me to give my experience as to what is supposed to be paralysis, as stated in Gleanings, page 817. I think it was in the spring of 1889 that the disease first made its appearance in my apiary, when I commenced to Italianize. I gave a statement through Gleanings, page 845, 1891, as to the salt cure, which I then was fully persuaded was an effectual cure for the disease called bee-paralysis. I have continued to make use of a strong solution of salt water ever since, by the use of a toy squirt-gun, once a week during the season, from spring till fall, through the entrance, all over the bottom-boards, and no one could possibly have had more healthy and beautiful leather-colored bees than I had when the spring of 1892 appeared; and as the weather continued wet and cold I decided to abandon the salt cure, and, up to about the middle of May, not a bee that I could see showed any signs of the so-called paralysis, while others around this section had noticed their bees somewhat affected. On Sunday morning, about May 15, at 8 o'clock I noticed a wonderful commotion among the bees. Thousands upon thousands scrambled from the hives, and, after a few jumps up and down, would be dead, and they seemed to be about a half larger than their usual size. The sight was so horrifying to me that I hastened to the house to tell my good wife that all of our bees were dying and that I was real sick at heart, and didn't know what was the cause nor what to do. I just felt like sending for the physican, not for the bees, but for myself; but just at this conclusion my wife had come in and said, "Let us try to do something to save some of them." She proposed to make some salt water and sprinkle the bees. "Good!" said I; and we hastily warmed three gallons of water with one teacupful of salt (chloride of sodium) added thereto. Stripping the oilcloth from the hives, with dusting-brushes we thoroughly wet combs, bees, and all, while the bees continued to pass out and die. However, as soon as the water began to drop through on the bottom-boards we noticed hundreds of bees eagerly sipping; and in one hour's time but comparatively few bees were passing out. I said to my wife that I didn't believe there were any more bees to come out; but on examining we found to our surprise a fair showing of bees and lots of brood in all stages down to eggs, and not a queen. I am fully satisfied that, if the dead bees had been gathered up, a half-bushel would not have held them. I know this may look fishy, but such are facts. In three days another sprinkling was given in a lighter form, as here and there a bee was seen to drop; and we continued the remedy as stated, and to-day my bees are bright and beautiful, and no visible symptoms can be noticed that paralysis ever existed, if paralysis it was. Who can tell? There was no time but that brood, capped and uncapped, together with combs, all had a clean and bright appearance, and no offensive odor that I could ever discover.

I want to state further, that bees both old and young seemed to be affected alike. Now, did the salt water check the disease or did it not? I most emphatically answer *yes*, in its broadest sense. One of my brother bee-men stated to me one day last week that he could not see that it was of much benefit to his bees; but such seems to be the evidence about the cure of foul brood; so I am a firm believer in the efficacy of the salt cure. J. A. Golden.

Reinersville, O., Nov. 8.

PRIOR RIGHTS TO A LOCATION.

DR. C. C. MILLER CONTINUES HIS CASE.

"Of course there is no *law* whereby the bee-keeper first in the field could secure the privilege of that field all to himself. The only thing he could do (and that is out of the question) would be to buy up, say, five thousand acres and allow no other bee-keeper to occupy that land. He then has a proprietary right to the whole field." That's what you say, Mr. Editor, on page 802. I doubt whether any one will raise any question as to the correctness of your position. Taking it as standing-ground, let us see if any thing can be built upon it.

If I am not mistaken there are places in California, or, at least, were in earlier days, with plentiful pasturage for bees, but worthless for other purposes. At any rate, it is not very difficult to imagine such a place. Now, suppose a person should buy a tract of 5000 acres of such land from the government, no one would dispute his perpetual right to occupy it exclusively for bees, at least so far as to locate colonies upon it. But, as you hint, he could not afford the price asked for it. He could say to the government, "It is absurd for you to ask me $1.25 an acre for such land, for it is utterly worthless for any purpose except bee-pasturage. No one will buy it for any other purpose; and if you hold it at such a high figure it will be occupied by bee-keeping squatters, quarreling among themselves as to possession. Better sell it to me at 5 cts. an acre than to get nothing for it." And if government is sensible it would reply, "All right. As there seems to be no possible chance that it will ever be good for any thing else, we may as well have $250 for it as to give it away, as we are now doing."

Can you see any thing wrong, so far, in the transaction? But the government might say, "It is true, the land is worthless except for bee-keeping; but some day it may turn out valuable for something else. We are willing to let you have it as you desire, for bee-keeping purposes only; but in case there should be such a change in the course of time as to make the land desirable for farming, we reserve the right to dispose of the land for that purpose, still leaving your title intact as a bee-keeper. In other words we sell you the right to the 5000 acres as bee-pasturage." Would there be any thing wrong in such a transaction? You will see that, in such a case, 50 farmers might occupy the land with 100-acre farms, without in the least interfering with the bee-keeper.

But suppose the 50 farmers first occupied the land, neither of them having any desire to reap its advantages as bee-pasturage, and having bought it with the express stipulation that they were to have no control over the bee-pasturage, would it not be entirely proper for the bee-keeper to buy the bee-pasturage of 5000 acres from the government? You don't see any thing wrong in that, do you? Well, my friend, if that's all right, why wouldn't it be a good thing for the government to dispose of the bee-keeping privilege of the land all over these United States?

"Oh! that's easily answered," you say. "Government can sell only that which is in its possession. If it had reserved bee-keeping privileges when it disposed of its land, then your proposal might be all right; but it has already sold all right and title to the land without any reserve, so it has nothing to sell.

Yes, that sounds all right; but the "greatest good to the greatest number" is the rule; and whenever it is for the general good, the government takes possession where it pleases. I have a warranty deed that is supposed to give me a clear title to a piece of land that measures 100 by 60 rods. I think it is as good a title as any one has; and yet I find I have only a modified right in the land after all. A strip two rods wide was needed for a public road, so three-fourths of an acre is taken off for that. True, I can raise whatever crop I please on the land, that does not interfere with public travel, and so can hold the land against all comers for agricultural purposes; but any one who wishes can travel over it. If I should take a notion that, because I own the land, I own every thing on it, and begin to shoot right and left at the birds upon it, I should soon find out my mistake. There was a time when I owned all the birds on the place; but it was found out that the public good demanded that innocent insect-eating birds should be preserved, so the law took away my birds from me, saying, "Let them alone; they are no longer yours." So you will readily see that, if it should be considered for the public good, the same public would not hesitate to lay its hand on all the bee-keeping interests in the land and control them. But, without further pursuing this line of thought, I want to repeat to you a little conversation I had the other day with my friend Bangs. We had been talking this matter over, and finally Bangs said, "I tell you, it's no use talking; you can't make things any different from what they are; and that notion that, by some hocuspocus, you can let one man own a piece of land and yet not be allowed to keep all the bees on it he pleases, is all poppycock."

I said, "Bangs, would you mind answering a few questions?"

"Of course not," said he; "fire away all the questions you like."

"Well," said I, "please tell me who owns the nectar distilled by the flowers on my place?"

"Well, now," said Bangs, "I didn't know you had a distillery on your place; but if you mean the sweet that's in the clover-blows, why, of course that's yours, just the same as every thing on the place."

"Do you think your bees ever work on my flowers?" said I.

"I reckon they do," said Bangs. "They say bees work two or three miles from home, and mine are only half a mile off."

"Suppose I should put out some poison to kill your bees."

"I guess you ain't likely to do that," laughed Bangs. "It would kill more of your bees than mine."

"Well, Jack Wilson has no bees, and our bees work on his clover. What if he should put out poisoned syrup?"

"Look here, now," said Bangs, "Jack Wilson ain't that kind of a man."

"Why, of course not," said I, seeing I wasn't getting on any. "But suppose I had no bees and was mean enough to put out poison for yours."

"Why, I'd show you mighty quick, if I could prove it on you. You'd have to pay pretty steep for damages."

"Well, suppose I should sue you for what your bees took off my place. How much could I recover, Bangs?"

Bangs broke out into a hearty laugh. Then he said, "Why, that thing's been settled, dead sure, long ago, that bees are freebooters, and can go where they please, so they don't sting anybody."

"So, then," said I, "I can do nothing to keep your bees from taking my nectar; and if they do take it I have no redress, but must just stand it."

"That's about the size of it," said Bangs.

"See here, Bangs, I thought you said all the nectar on my place belonged to me." A curious look began to steal over Bangs' face. Pushing my advantage, I said, "It seems to me, that's a rather queer kind of property that anybody else has as much right to take as I, and I can't drive them away nor get any pay for what they take."

"Well now, I declare to goodness," said Bangs, "I hadn't never looked at it just that way before. I never had, for a fact."

"Don't worry over that, Bangs. You're not the only one who hasn't seen things straight. I think Prof. Cook was the first one I ever remember putting that matter in its true light. He doesn't agree with me; but in a convention at Chicago I heard him say, "It may as well be understood, first as last, that the man who owns the land doesn't own the nectar on it." And I think any reasonable person will admit that, if nectar is public property, there is no reason why the government may not dispose of it in any way that may be most for the public good. And if it be for the general good that bee-keeping be carried on by those who make a special business of it, then it is possibly only a matter of time when there will be no more talk about a man's moral right to his territory, but by purchase or otherwise he will have a legal right. In other words, he will own the territory needed to get a crop of honey, just as much as a man now owns the territory he needs to raise a crop of potatoes." C. C. MILLER.

Marengo, Ill., Nov. 11.

HUMBUGS AND SWINDLES.

Our readers will remember that we have frequently spoken of the swindles emanating from J. M. Bain and his aliases from Zanesville, O., or little towns adjoining. He is now receiving considerable sums of money for a new fraud, particulars of which are given in the following, which we clip from the *Rural New-Yorker* of Nov. 19:

> It appears that the unjailed bird, J. M. Bain, is back of the new swindling dodge of selling "black pepsin" for increasing the amount of butter to be churned from a given amount of cream. An extract from this scamp's letter was given last week (see page 741). It is a fraud and a humbug, a scheme well worthy of one who has robbed thousands of women by his fraudulent schemes, in the guise of plating-machines, incubators, pure-bred chickens, eggs, valuable new seeds, and other delusive temptations. The fraud has letters sent to an alleged "Chemical Co." in New York to avoid detection and make his absurd offer more plausible. To their disgrace, be it said that several agricultural papers have printed this stuff.

NOTES OF TRAVEL

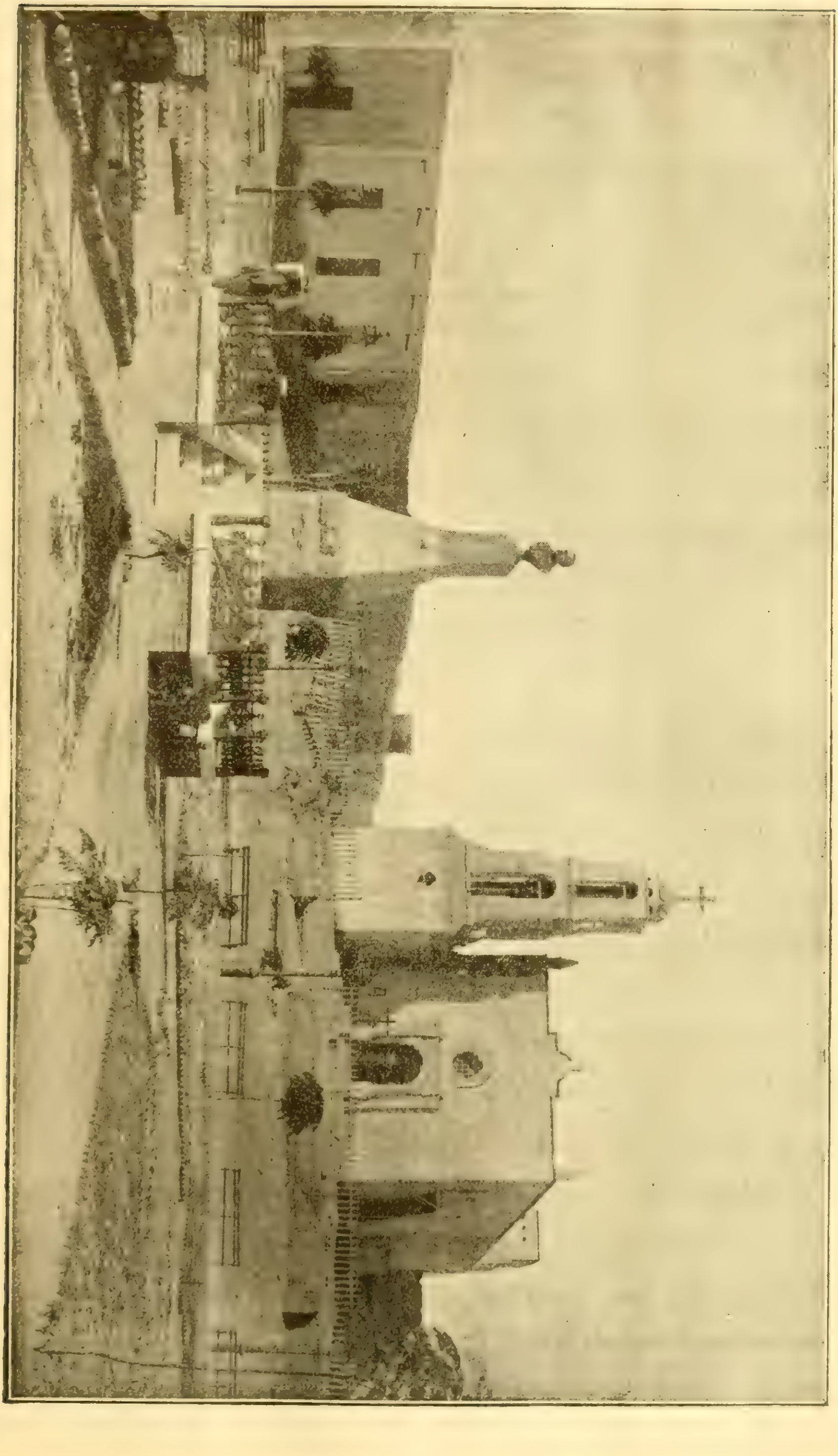
FROM A. I. ROOT.

PASO DEL NORTE.

In crossing the great bridge that separates the United States from Mexico, we were obliged to pay an extra fare of ten cents on the street-car; and in just a few minutes we were in a foreign country. One would hardly believe that simply crossing a river like the Rio Grande —a river which is many times not a river but only a dry gravelly bed—as I have said, one would hardly believe it possible to find the change we meet in going from El Paso to Paso del Norte. The people are different and the buildings are different. It is true, we meet many Mexicans, Spaniards, and Indians in El Paso; but across the river the people are all alike unless it be an occasional visitor of the American type. The Mexicans seem to be a quiet, inoffensive, and peaceable folk. As there are many visitors we find fruit-stands and curiosity stands at almost every turn. In fact, in this mild climate these little stands for traffic and trade stand outdoors the year round. Things are very cheap in Mexico, and pennies are in common circulation. In the way of eatables you can get more for a penny of almost any thing than you want. Perhaps one reason for the latter fact is that, as you pass along with your cakes or pies in your hand, a glimpse into the dwellings, with the doors wide open, makes you fear that some of the dust and dirt may have got kneaded into the cakes. At one place a Mexican was supplying a hungry crowd with chunks of something from a great dish-pan. It was probably pieces of sweet potato, or yam, fried in fat of some kind. They passed in their pennies, and he cut off slices which they took in their greasy fingers. While we were thinking of sampling this delicious luxury —at least the people seemed to think it so—the vender noticed some crumbs of the potato sticking to his big knife. Without a bit of hesitation he licked his knife clean with his tongue, and then went on in a very businesslike way slicing off more for the people. Mrs. Root took umbrage at this proceeding, and not only refused to make a purchase, but she would not buy their candy, cakes, nor any thing else, until we got across the river into Uncle Sam's domain once more.

On the adjoining page I have given you a picture of one of the oldest churches in America. But I am not ready to take a look at the church just yet. I want you to notice the dwellings at the left hand of the picture. This is a fair type of the streets and dwellings of Mexico; but they are rather finer than you find anywhere else, because they are on the street close by the old church. Please notice those sticks projecting along where we should see the eaves. I saw these all through the Mexican towns and finally I asked somebody what it meant. "Why, bless your heart," said he, "those are the eavespouts that carry the water off over the sidewalk." The roofs of the buildings are made of weeds and straw, covered with clay, or "dobe," pronounced *do-by*. They seldom have rains hard enough to wet clear through the dobe straw roof. But when there is enough rain falls these spouts sticking through the wall carry it away from the building, else it might wash out the dobe sides and dobe foundation. The floors are of the same clay, or dobe, stamped hard. I suppose the grease and dirt that get on the floor in the course of years make the floor a little harder, for that too is stamped in. These floors, however, are generally swept clean, and the dooryards are swept clean and tidy also, sometimes for quite a little distance. The abundant sweeping gives the dooryards a rather pretty-looking appearance, and then the ground is generally stamped very hard and firm all around the doorway by the abundance of children that troop about. I am glad to notice that the children are fast getting hold of the customs of the United States, and I believe they *all* go to school, although every thing seems to indicate that these people are just emerging from a sort of at least semi-heathenish state. They act much like the Indians I have described. They are backward about talking much, especially with foreigners; and when you try to talk with them, many times their swarthy faces are tinged with a blush of embarrassment. They evidently recognize us as their superiors in many things. I am inclined to think, however, that they think their religion better than any thing we have to offer.

And now about this old church, built somewhere about the year 1550. I thought I had the date in my notebook, but I can not find it. Any way, it was built so long ago that the door which you see in the shadow, on the right hand of the tower, swings on a pole instead of on hinges, as in modern times. The bottom of the pole stands in a hole made in a block of wood, and the top sticks through a hole in a piece of block above, and the door is built fast to said pole; and when you open the door the pole turns around with the door. The winding stair is worn by the tread of many feet for centuries. There are two bells in the tower—a large and a small one. The audience-room of the church is very neat and tidy. At the further end, candles are burning all day long, and priests and other officials are constantly going through some rite or ceremony. But the strangest part of it all to me was to see people going into and out of the church, apparently at every hour of the day. Some of them simply went inside and dipped a finger into a little stone tank of "holy water." With the wet finger they then made a cross on the forehead, and with bowed head they went out. Fine ladies, servant girls, business men, and even children, did the same thing. They seemed to take in the place of worship on the way to and from business. Sometimes packages of merchandise were laid down while the owners went in to pay their vows. Many of the worshipers knelt on the stone floor, and, I supposed, breathed a prayer, although I did not hear it. Others went up nearer to the lighted candles, and approached certain holy inclosures. Sometimes they went inside as they knelt in worship. As I looked on I felt moved by the spirit of the place and the people. A girl came along with some packages which she had probably purchased. She had the appearance of a girl who works out. She laid her bundles down, approached the holy water with a sober



OLD CATHOLIC CHURCH AT PASO DEL NORTE, MEXICO.

and solemn look, then she knelt, and I either saw, or imagined that I did, her lips moving in prayer. I do not know what she said, of course; but is it not possible—nay, likely—that she was honest and sincere, while something like the following passed through her mind?

"Holy Father, help me to be better than I have been. Give me grace to be more gentle and kind to the baby. Help me to be more patient, even when my mistress is unreasonable; and especially, O Holy Father, help me to overcome my growing habit of telling fibs and falsehoods. Give me courage from on high to *confess* my faults, instead of telling little lies to screen myself and creep out of them. Help me to *own up* when I have been forgetful. Help me in my efforts to avoid evil companions that I know are harmful. Help me to love more this thy holy church, and forgive all my many sins. Amen." Our stenographer suggests that he fears I have been stretching my imagination on the side of charity. Well, the truth is, that neither he nor I know just what thoughts and emotions are in the hearts of these people when they kneel in that old church where thousands have knelt before them. Of course, I should want every prayer to be made in the name of Christ, for "no man cometh unto the Father but by the Son;" but from what I know of them, this is not their way; and our stenographer again suggests that their address would more likely be made in the name of the "holy *mother*" than to the Holy Father. But even if that be true, I trust and believe that, with the large business traffic that is now opening in Pasó del Norte, with us, thoughts of God and Christ may soon be carried in; and I hope, too, that there may gradually commence a *practical* form of praying, even if they have not done it already, instead of formulated prayers and mechanical actions without heart or spirit in them.

I told Mrs. Root that I was not going away without taking some part in their religious services; perhaps she feared that I too was going to kneel and pray on that stone floor. I did not feel quite called upon to do that, however, but I did—what do you suppose? Why, I dropped a nickel into a little box that had an inscription over it, soliciting funds for the purpose of keeping up the church and its services. Some of you may think, perhaps, that civilization in its progress should tear down and obliterate this sort of religion—especially when we recall the bloodshed and crime and superstition that have been more or less attached to it in times past. Now, I can not agree with this. Of course, I know very little about the whole matter; but I should like to see that very church-building, those very services, and the same people that frequent them now, gently molded over to some practical religion. May be it can't be done, and has never been done; but I tell you, friends, the universality of Christ's religion—that good time that Habakkuk foresaw when he declared that the "knowledge of the Lord shall fill the earth as the waters cover the sea," and that Daniel foresaw when he said that the stone cut out of the mountain should fill the earth, is even now at hand—a kingdom that Christ said should stand against all the assaults of the enemy; a time when his prayer will be answered for the unity of all his people. The Endeavor Society is making a big stride in that very direction, or, at least, in a direction that will bring harmony, close acquaintanceship, and brotherly love between the members of various religious organizations we now have scattered over the world.

The walks in front of this old church, the stone edgings, and the shrubbery, give one a glimpse of Mexico. The inscriptions were all in an unknown language, so we could tell but little about them. The fine monument, with its little enclosure, in the foreground, we judge to be quite modern. Our proof-reader tells me that the inscription, seen in the photograph, reads, "*A Benito Juarez*"—"In Honor of Benito Juarez," president of Mexico.

The dogs are quite plentiful in Mexican towns and streets. Two of them you notice are even now in view. The big one at the left looks so exactly like the chap that walks over my glass sash across the way, smashing the glass at every step, that I fairly ache, every time I look at the picture, to chop off that tail of his that sticks up in the air so like a flag; only, if I could choose just where to have it cut off, I would let the ax fall just back of his ears. You will notice a goat standing in the shade of the president's monument. Goats are also quite plentiful in Mexico, and they are just as nasty there as anywhere else. The Mexican, seen with something on his head, with his shawl wrapped about him, looks like the fellow who was selling fried yams. Perhaps he is moving off to another part of the town to find a fresh lot of customers. The young trees visible, I judge to be the beautiful umbrella-tree. When they get a little larger, their beautiful foliage ranges itself toward the sun and light, almost like shingles on the roof of a house, and it is a veritable great umbrella, affording a delicious shade, which is needed in Mexico almost every day in the year

Oh! I forgot to tell you that, as we passed out of the church, we noticed some lettering on the stones under our feet, and we were informed that the former priests and officials of the church have their resting-places under these very stones, so that, while we were standing on the walk, we were really stepping over "the tombs of the prophets." The dates went back to the 15, 16, 17, and 18 hundreds.

Now, as I try to tell what we saw there I am aware that I have doubtless drawn some very erroneous conclusions. If so, I wish some reader of GLEANINGS, who is competent, would set me right. I should be especially glad to know something more of this strange religion that has scattered the ruins of these old mission churches throughout such a large part of our land—ruins that go back almost to the discovery of America by Christopher Columbus.

In many of the shops we saw beautiful specimens of Mexican onyx and Mexican filigree jewelry. This filigree jewelry is probably more artistic than any thing else in that line made in the world. Some of it is so fine that it requires a magnifying-glass to see the spiderweb wires that form the beautiful scrollwork and frostwork; and I am told that the greater part of it is made entirely by hand. The material is chemically pure silver. The shopkeepers urge visitors to buy, because of the saving of all duties and customs between foreign countries. In fact, at Paso del Norte they import laces, precious stones, and every thing in that line, from all parts of the world, free of all customs duties. "It costs you only ten cents to come over here, and ten cents to go back again, and you can save dollars by making your purchases here," urged a shopkeeper. But I insisted that we should show the goods we had purchased, and offer to pay customs, as we went back over the bridge. At this our friend put up both hands in disgust. "Why, put the goods in your pocket, and I assure you"—and he brought his hand down with emphasis—"that they will never say a word, and you will not have a bit of trouble." I tried to make him understand that that was not the point at all. If it were contrary to the laws and regulations between the two countries, I did not want the goods in my pocket, and I did not want to save the duty.

I do not know whether he belonged to the old church or not; but it was evident that his religion did not take in even a *glimpse* of any sort of such religion as I tried to explain to him.

HIGH-PRESSURE GARDENING.

BY A. I. ROOT.

VEGETABLE-GARDENING FOR DECEMBER.

The principal vegetable to raise under glass is lettuce; and I think the Grand Rapids lettuce takes the precedent now pretty much all over the United States. The biggest demand usually comes in the month of February. In some localities, perhaps it is a little later — say through March; but during February and March the demand has always, so far as I know, been beyond the supply, and a great many times very high prices are realized. During last February and March it brought from 15 to 20 cts. a lb. at wholesale, and retailed at from 30 to 40. We sold it for a nickel per ¼ lb. It was put up in little paper bags. There seems to be a general craving for green stuff just before the approach of spring, and no doubt this craving is natural, and therefore we may suppose it exercises a beneficial effect on the health.

Well, as it takes about 90 days to grow Grand Rapids lettuce to perfection, if you have not already sown your seed you want to get right at it now. The seed may be started in a box placed in a window, in some room where the temperature will be about right, and the window should be one that will afford as much sun as possible. The plants may grow in the boxes for the first four weeks. I believe the best lettuce-growers usually transplant twice. This not only makes a stronger root, but it is economy of space. Give the plant more room as fast as it needs it, and not any faster. In the latter part of January, and during Feburary, lettuce will do very well in a cold-frame. It should, however, be pretty well banked up with manure around the sides; and when the weather is very severe, a shutter or straw mat should be put over the sash. Cold-frames and hot-beds are cheaper than a greenhouse—that is, the first cost is less; but after you get to doing very much with these latter appliances you will, sooner or later, want some sort of glass structure that will permit you to get inside and work during cold or stormy days. Every one who farms, or who hires hands for working in the ground, sooner or later finds it cheaper and more convenient to hire his help by the year. In this way the man becomes accustomed to the ways, knows where things are planted, and in many ways is oftentimes worth double the price of a green hand, even though the latter has the same ability. Well, if we hire help by the year, what shall we do with them in winter time or during stormy days in spring and fall? And this is just where a greenhouse comes in. How shall we made a structure for this purpose cheapest?

A CHEAP WAY OF MAKING A COLD GREENHOUSE.

One of our greenhouses has been so much shaded by the new buildings, made necessary by the enlargement of our business, that I have been for some time thinking that it would have to be moved to some point where we could have every bit of the sunshine. In fact, I have never had a greenhouse in my life, until within the past ten days, where it had *all* the sun in the months of December and January, from morning till night. Now, such structures, exposed to dampness, frost, and sunshine, rot out very quickly—especially the part that comes next to the ground. Stone is expensive, and it conducts frost in a way that makes it not just the thing. How, then, shall we have our glass supported in some way that will be durable and frost-proof, to a large extent? I will tell you what I did. I purchased pine lumber, 2x6, in lengths from 20 to 30 feet long. Then I hunted up all the old iron pipe I could find, about an inch or an inch and a quarter, outside diameter. You can get discarded gaspipe in almost any collection of old iron; or if you go to the plumber's or repair shops you can almost always find second-hand pipe that can be had at a very low figure. Our long string-pieces, 2x6, are Norway pine or hemlock — something durable, and that will hold nails. With an expansion bit we bored holes in these strips about 6 feet apart. The holes are to go in the narrow way, and reach almost through the narrow stick — say to a depth of 4 inches, the holes being of such size that the pipe will drive in snug and secure. Now these iron pipes or iron stakes are to be driven into the ground. We drive them into our soil from 2½ to 4 feet, the depth depending upon how far they are to rise above the ground. You can stretch a line and drive the pipes first, and then drive your piece of timber over them afterward. Sticks supported in this way make the plates for the glass sash to rest on. For the center pieces, the pipes reach out of the ground about 4 feet; then, by sinking the paths between the beds down a foot and a half or two feet, there is no difficulty in walking all through the structure if you walk in the paths. Such a structure, containing 45 sashes, we put up last week in about four days. It is warmed by exhaust steam running in tiles back and forth under the beds. These iron pipes are the only support the building has. Around the outside of the structure we board up to the plates with some kind of cheap lumber, and something that does not rot easily — say chestnut, hemlock, or Norway pine. After boarding we banked up with dirt almost to the sills. This boarding is fastened to the iron pipes by common staples large enough to go around the pipe and clinch in the boards. In this same way we board around the beds, leaving the paths between the boarding. The main roof of the building is made of 32 sash; 4 rows of 8 each, running east and west. These 32 sashes have only a slight inclination to the south, except the extreme southern row, which comes down to the ground with quite a sharp slant; then, to get the evening and morning sun, we have a row of sash on the east and west sides, sloping down to the ground like the row on the south side; and on the north side we have a similar row; but, as there is no sun to catch with these, instead of coming clear down to the ground, the lower edge of the sash rests on a support about three feet from the ground. The structure is particularly for raising vegetable-plants; and by the first of May, or perhaps a little later, and when frosts are no longer to be feared, the sash are all to be lifted off and piled up. We have practiced this for a great many years, and we find it much more satisfactory than a greenhouse where the glass is not movable. When the sash are all stripped off, and the plants receive the full benefit of all the later summer showers, it is just a sight to see them boom.

RAISING CELERY IN WINTER TIME.

I am reminded of this matter this Thanksgiving morning by the tremendous demand there is for our White Plume and Self-blanching celery. Our stock is so nearly exhausted that we have had to put the price for the best at 15 cts. per lb., and yet the supply is not nearly equal to the demand, and never has been. This new celery culture that has been so much talked about opens a way for raising celery in winter—yes, even out of doors, and we have got one bed about 8 feet wide by 75 long, where the celery is just growing beautifully. Some of the largest might do for table use now; but it would be a pity to take it while it is less than half grown. Last night we had a temperature of only 15 above zero; but the celery is as yet unharmed. Of course, it is protected with boards all around and sash on the top. The boards are about a foot and a half wide, and we have banked dirt nearly up to the top. We are just now making preparations to supplement the dirt with coarse strawy manure. The manure will be right on the garden, where we want it, and all that leaches out will go down into the dirt and around the celery. As the bed is 8 feet wide, and the sash are only 6 feet long, a board one foot wide is laid on flat and nailed along the north side, and a similar one along the south side. These boards are nailed to strips that connect the stakes, these strips running right under the sash. With plenty of coarse strawy manure, and possibly some shutters over the sash, I think the celery can be kept in such a pit all winter. I am not sure that any glass is needed at all, covering the whole bed with boards; but as this has not grown as large as we wanted it, I thought the glass would help it to grow during nice spells in winter.

OURSELVES AND OUR NEIGHBORS.

For the flesh lusteth against the Spirit, and the Spirit against the flesh.—GAL. 5:17.

It seems a little singular, friends, that I should choose the above for my text to-day, when I can remember so vividly how I used to dislike these very words. Away back in childhood, in reading or hearing read portions of the Bible, where it spoke of "lust" and "lusteth," "Spirit," "flesh," etc., how dry and dull and unmeaning the words used to be! I used to feel very much like saying what a friend said to me in jail one Sunday afternoon when I started to open the Bible. Said he, "Mr. Root, I have got so sick of that sort of stuff that I absolutely can not bear to hear it." There was good reason in his case, however, why he should dislike any thing from the Bible just then. He was just recovering from a drunken spree, and had been giving lust full swing; and he had crushed out the Spirit or all the spirituality that he might have had in his sober moments. And now herein lies the divinity of the Bible. It is dull, dry, and unmeaning—yes, I know that by experience—to those who do not propose to listen to its pleadings. Sometimes men say, "Well, I guess after all this world is about all there is to it, any way, and for my part I am going to get just as much out of the world as I can before I die. If I run against other people, or other people's happiness, they must look out for No. 1." They do not often put in the word "happiness," but they include it all the same. Such people decide as a matter of course that there is no future, and *no God*. A God of justice would be very inconvenient to one in such a state of mind, and hence "The fool saith in his heart, there is no God."

It is only within a short time back that I have begun to comprehend fully what that word "Spirit" in the text means. In our recent Sunday-school lessons, where the Holy Ghost has been mentioned several times, I have been noticing the note in fine print at the bottom of the lesson-helps, saying that the American revisers would substitute "Holy Spirit" instead of "Holy Ghost." Now, that word "Ghost," even when the word "Holy" comes before it, and when both words are capitalized, has always been more or less repulsive to me. Since I have gotten over all my childish superstitions in regard to ghosts, and I since have, through the light of Christ Jesus, learned to fear nothing but *his* displeasure, the word ghost has had an unpleasant sound, and it brings up unpleasant recollections. If you say "Holy *Spirit*" it divests the expression of all these unpleasant recollections, and the Holy Spirit is what gives us spirituality. How I do love that word "spirituality"! In talking with some people we see that their thoughts are all about the world and worldly things. They are *all* worldly. Sometimes we say, "That woman (or man) does not seem to have a *particle* of spirituality." Sometimes I am obliged, while waiting for something, to listen to the conversation that is going on about me. A good many times it becomes my duty to entertain people. Oh how I do love to find something *spiritual* about them! How I do love to discover that it is an easy matter to lead them away from worldly things up to something higher—to something spiritual! And now for the statement of our text, "The flesh lusteth against the Spirit, and the Spirit against the flesh; and they are contrary the one to the other."

It seems a little strange, sometimes, that we as human beings should have both a spiritual nature and a fleshly nature. By the way, that word "flesh" is one that used to trouble me. The word "trouble" is not quite strong enough, however. I think I have told my good old mother that such words *disgusted* me. This was the time when I was about eighteen or twenty. I knew a great deal more then than I do now—or, at least, I *thought* I did. I used to talk "evolution" to her then, and tried to persuade her that evil would finally go out of fashion or get behind of its *own accord*. Dear me! what a doctrine! When your garden gets to growing up to weeds, and the weeds are outtopping the potatoes, suppose you excuse your farming by explaining to your friends and neighbors that, in the course of time, the weeds would diminish in vigor, and the potatoes would get ahead of them and crowd them out of existence. Wouldn't that be a bright kind of philosophy and reasoning? Why, you would call such a man an idiot. You would say to him, "My good friend, your potatoes are about ruined already. There never *can* be a good crop, and your only possible chance for even a poor excuse for a crop is to get right at it this minute, yank these big weeds out by the roots, shake off the manure and rich soil clinging to said roots, and lay the weeds down between the rows for mulch for your poor abused and long-suffering potatoes. If you get right at it now, and look sharp that not another weed gets a foothold, you may possibly have a few good potatoes. But nothing but the most prompt, earnest, and immediate effort can give you any crop at all." Just so with spiritual things and fleshly things. They are as much opposed to each other as those great weeds are opposed to potato growing. If you want to raise potatoes, the weeds must be kept down from the start. If, however, you want to raise weeds, and have made up your mind that you don't want any potatoes at all, you had better pull your potatoes up. Come to think of it, I don't believe it would make very much difference, however, whether you pull them up or not. The potatoes (although the plant is a rank grower when it has a fair chance, loving care, and kind treatment) would, under ordinary circumstances, make no headway at all against the rank common weeds. Just so with spiritual things. Spirituality will not grow in your heart without care and encouragement. Your spirituality will be dead and gone unless you look after it, water it with love and kindness, and keep the weeds from shading and crowding and choking it. Does some one say, " Well, what is the use of spirituality, any way?"? Why, spirituality is what makes us men and women in God's own image, instead of wild beasts. What a hideous thing is a wild beast! Perhaps you have seen conflicts between beasts of prey and their victims. Sometimes the victim is of such size that it and its natural enemy are pretty well matched. I have seen a dog and a woodchuck stand in about this relation to each other. The dog for a time seemed to almost fear a contest. Finally he summoned all his savage, ferocious nature. By barking, and showing his teeth, he wrought himself up to state of rage and frenzy. Then he pounced upon the poor cornered victim, and in the most savage and cruel way proceeded to tear him limb from limb. Such sights give us pain, or ought to; but they give us a glimpse of the low brute nature. People who learn to love—by the way, the word " love " is not the one after all, for it seems sacrilege to use it in that sense; but what I mean to say is this: Even men and women may develop a low taste for scenes of ferocity and bloodshed so that they look on with satisfaction in seeing one animal destroy another. Dog-fights, cock-fighting, bull-fights, and things of this class are an illustration. After they have seen an animal "drag the beating heart to light" from his victim then Satan puts it into the heart to demand that the fierce wild animal shall try his low brute nature in a contest with a human being; and where there is a chance that a *man* may be killed, instead of an animal, thousands will flock to see it. While in Paso del Norte, mentioned in another column, Mrs. Root and I visited the arena, where they hold their bull-fights. It was a cheap wooden structure, and its size indicated they did not have very large audiences. They can not have them in the United States. The Humane Society has put an end to it; but Mexico has not as yet got far enough advanced in civilization and Christianity to do the same thing. When they have these bull-fights, however, they are advertised for hundreds of miles away. The people come from the United States to see them. They always have them on *Sunday*. Isn't that a little significant? and it is point I am coming to a little further on.

Well, these things I have described are types of the lowest and most degrading order of letting flesh rule instead of the Spirit. No, no! hold on. A bull-fight does not compare in low sensuality with a prize-fight between two *men*. Isn't that true? There is not a specimen of the animal kingdom but that stands *higher up* in the scale of animals than the two men who thus consent to pound and bruise each other because the populace demand it. Why, it is often urged that these men have no unkind feelings toward each other at all, and no sort of grudge. Before the contest they are as pleasant toward each other as a couple of brothers, and it is just so after they get through. If a man were to insult you or some of the weaker members of your family, and you were to pound and bruise him, we might say there was some excuse for it; and even some Christian people might say, " Served him right." But this prize-fighting is a *cold-blooded* affair. Men bruise each other, and mar the image that God has made, with the same coolness and deliberation as that with which a butcher would put his victim to death. I suspect that it is the gambling craze that lies at the bottom of the whole of it. Satan likes to link his agencies together. When the men fight, then *other* men give loose to their unscrupulous greed to rob each other of their earnings. They take money without equivalent. It is not quite highway robbery, because both parties consent to it. The party who is robbed is not drunk with *whisky*, but he is drunk with the *gambling* craze, with a fierce passion to take the money or property that belongs to his neighbor, without equivalent. Why, what an awful thing gambling is, any way! Did you ever think of it? A young man in my employ—yes, a boy who for years sat under my teachings at one of the mission Sunday-schools, after he grew up, and while in my employ, I found he was spending all his earnings in *gambling*. I talked to him about it, and he frankly owned it up. Said I, " Why, look here, my young friend. Can you look me in the face and own up that you *wanted* to take, or were *willing* to take, or did take, the hard earnings of your comrades and friends simply because you *won it* in a game of cards?" He did not reply in words, but nodded while he cast down his eyes, as his cheek flushed somewhat with shame. " Why, could you be happy with the money in your pockets that they had worked slowly and painfully for during past weeks and months? Is it possible that, in this enlightened and intelligent country, with such a mother as you have had, and such brothers and sisters, that you could *want* the money belonging to somebody else, without working for it? What has got into you?" He assented to all I had to say, and gave me a feeble sort of promise to do better. But he was in Satan's toils, and I fear he is yet. He behaved almost exactly as do those who are crazy for strong drink. In fact, the two are twin—will it be wrong if I say twin *devils* instead of twin *evils?* Well, if you are so foolish and thoughtless as to let either one of them get hold of you, you may look back some time and say, " Brother Root was right. He called the thing by its right name."

These fleshly lusts grow upon us amazingly. They extend their roots and tendrils until they get all over us; and after you think you have shaken them off, you will find the old roots and tendrils clinging there still, until it seems as if you must tear yourself to pieces to root them out and make them let go their hold. God knows that *I* know something about it, even if my most intimate friends do not suspect it.

We used to have a Jersey cow that was taught to tear down the fence around our pasture lot. The way we *taught* her to have such amazing skill with those little hooked horns of hers was by a careful system of education. No, no! I do not mean *careful*—I mean *careless*. Every time she broke out and got into the sweet corn, we patched up the fence a little better. She was young, restless, and intelligent, and she finally began to enjoy the fun of ripping up things with those sharp horns of hers as fast as we could repair the breeches with barbed wire and clinched wire nails. She soon learned to use her horns as dextrously as a carpenter would use the claw of his hammer. After she had pried out the nails sufficiently, and pulled out the staples with her horns, then she would push against the fence until she could hear something crack. Then she would work with her horns once more, then she would get her head in a hole, and lift, so as to pull the posts out. Finally she would march off with a part of the fence on her back, a good deal as Samson did when he carried off the gates of Gaza. After we got it tight all around, then she would make a tour of inspection and investigation, go clear round the whole lot, and look out the best spot to begin operations. Why, I have sometimes wished that I had a carpenter who possessed her skill and intelligence, especially in tearing things *down*. Now, what do you suppose my cow story has to do with fleshly lusts? Why, that is exactly the way fleshly lusts operate when they get the start. It is not a *cow*, mind you, that is implanted within the most of us, but it is a *ravenous wild beast*—a fierce, savage, *cruel* animal that knows no more mercy than the wildest and most ferocious tiger that ever trod the earth. Perhaps you think I am going to extremes on total depravity. Well, I get my information very near home. I have had tussles with that wild animal; yes, and I am *having* them more or less right along. But for the grace of God, what should I be and where might I not be at this moment? Now, what I want to tell you is this: That, after you have given way to fleshly lusts, like the Jersey cow they will be on the lookout for a weak spot somewhere. If you give way to *one* low depraved passion, the next one will clamor for admission also. If strong drink is your weakness, and you are where no strong drink can be had, Satan will suggest transgressing in some other way; and when one has let the bars down, so to speak, and indulgence has been granted to *one* fleshly lust, the others crowd through like a drove of wild beasts. The bars are down, the gate-keeper is trampled under foot, and, instead of a human soul created in God's own image, the spiritual part—the God part—is gone entirely. Why, we have evidences of this state of affairs every little while. Not long ago, in a neighboring town a man quarreled with his wife. He struck her a blow that *killed* her. Before he knew whether she was dead or alive, he rushed out of the house, tore down the street to where a train of cars was coming attached to a locomotive. He cast himself in front of the locomotive: and before anybody could see what he was doing, or stop him, he was a mangled corpse.

Just one other illustration of a human heart that has opened the gates toward all evil, and quenched the Godlike spirit entirely. History tells us of a certain proposed mutiny on board a vessel at sea. Before, however, they had put their plan into execution, it came out, and the ringleaders were hanged, and dropped into the sea. A writing was discovered, outlining their plan. They were first to murder the captain, and all the officers that were not in the scheme. Then they were to put to death and throw overboard the passengers, and the vessel was to be converted into a piratical craft. Now bear with me while I mention just one other clause in that hellish compact. The women were also to be put to death except such as they considered fit for their purpose. After a time these were to be put to death also. There you have it, friends, the whole picture of a human heart given over to fleshly lusts, and yet quite a number on board that ship volunteered, and signed an oath to go into this hideous work. The ringleader of the plot was the son of respectable parents in good standing, and he had had at least a respectable bringing-up. You see, these crimes go hand in hand. When a man consents to one of them Satan says, "Here, you might just as well give free rein in other directions as in this one, after you have enlisted in my service."

Now, dear friends, where is the remedy? Why, it is right before us in our text. The influences of the Holy Spirit in the heart of man are constantly rebuking, checking, and holding back these low animal cravings. When God breathed into man the breath of life, he gave him his spirituality. "Behold the Lamb of God that taketh away the sin of the world."

GLEANINGS IN BEE CULTURE
A Journal Devoted to Bees and Honey and Home Interests.
Illustrated Semi-Monthly
36 Pages 7×10
$1.00 Per Year

My brethren, count it all joy when ye fall into divers temptations.—JAMES 1:2.

WE have on hand already orders for seven carloads of goods for 1893, and a prospect of more coming in before the 1st of January.

IF you are expecting to go to California to keep bees, or run a fruit-ranch, be sure to read Rambler's article in this issue. Read it anyhow.

THE North American Bee-keepers' Association will hold its annual meeting in Washington, D. C., on Dec. 27, 28, and 29. This time has been set to take advantage of the usual holiday railroad rates. Further particulars will be given in next issue.

WE have just received a correction to be made in W. T. Falconer's advertisement, appearing on the last page of the cover. As the correction came too late, we will here state that their price, $2.50 per 1000, applies to 4¼ sections, 1 15/16 only. When this stock is sold out, the regular prices will take effect.

PROF. COOK says, in the *American Bee Journal*, that most if not all of the States have well-equipped laboratories in connection with their experiment stations, where analyses of all suspected honeys can be made free of charge. This, as he says, would make it easy for any one to investigate any suspected sample.

THE last *Review*, containing the sugar-honey symposium, is at hand. As nearly as we can gather, nearly all the writers, while they do not actually condemn the practice, confess to some anxiety as to the bad consequences that *may* result from its agitation. Perhaps none such will ever come; if so, no one will be more pleased than we.

IT is one thing to *court* honest criticism, and another to accept it as *honest* when rendered; many are capable of the first, but few are equal to the second. Mr. Hutchinson is one of the few who are capable of both. Although GLEANINGS has criticised, almost severely, the policy of the *Review* on the sugar-honey question, its editor accepts it in a kindly spirit, and as an honest expression of difference of opinion—just what we want it to be—although one less fair might try to construe it as the pessimistic wrangling of a rival.

NOW that the date of the national convention at Washington has been settled (Dec. 27 to 29), many of us will be wondering what the best route will be for us to take. In talking with a prominent railroad man—one who has no ax to grind—he recommended the bee-keepers to the Pennsylvania lines west of Pittsburg, and to the Pennsylvania Railroad east of Pittsburg as the best and most accessible route to Washington. We can leave St. Louis, Chicago, Indianapolis, Cincinnati, Toledo, and Cleveland, so as to arrive in Pittsburg on the morning of the 26th. From this point, if we do not get together before, we can go in a body to Washington, and have a chance to pass over the Pennsylvania Railroad by daylight, see the famous Horseshoe Curve, and the beautiful Susquehanna and Juniata Rivers. "A. I." himself expects to be one of the crowd.

ALONG with the Langstroth Reminiscences we present a full-figure view of the "grand old man" as he now appears in his latter days. The half-tone is copied from a picture taken by a bee-keeper and amateur photographer, who, seeing Mr. Langstroth in a park near his home in Dayton, O., took a shot. The artist, if we remember correctly, was a Mr. Reynolds, of Dayton, and we hereby acknowledge our thanks. Although the picture was taken nearly two years ago, it shows our much respected friend and benefactor exactly as he is to-day. In our next issue we will show a handsome bust picture, taken when he was in the prime of his life—one large enough to be framed. By the way, we hope these Reminiscences and portraits will remind some of the friends who look on that kindly face, of their forgotten self-assumed obligation—that annuity fund.

FEEDING BEES SUGAR TO MAKE HONEY.

PERHAPS there is not much need of any thing more being said on this subject; but a point occurs to me here which serves to show how incongruous is the whole thing. Bee-keepers all over our land have been feeding sugar syrup for winter stores ever since the first bee-journal was published. If this sugar syrup remains very long in the combs it is almost sure to granulate, and different substances have been used to prevent this granulation; and our veteran friend Doolittle has given us the very best remedy for said granulation; namely, adding a small quantity of *real* honey. Now, if sugar syrup, after being fed to bees, becomes honey, what an absurdity to think of adding *real* honey to something that is *already* real honey! Once in a great while there may be trouble from *real* honey candying in the cells. This is very rare compared with the difficulties we have with sugar syrup turning back to dry sugar so it rattles out of the combs. Just one thing more: In that report about the forty students, it is stated that they were unable to detect the sugar syrup from basswood and clover honey. If this meets the eye of any of those forty students, I wish they would stand up and tell us if it were really true that they could not tell *basswood* honey from sugar syrup after it had been fed to the bees. The strong aromatic flavor of basswood is so well known and universally recognized that it does not seem possible that *anybody* could taste one and then the other, and pronounce them alike in any respect. Isn't there some mistake? A. I. R.

ADULTERATING HONEY—IS IT PRACTICED? IF SO, WHAT SHALL WE DO ABOUT IT?

IN the *American Bee Journal* for Nov. 17, Prof. Cook has an able article in which he shows the extent to which honey is adulterated. As chemists are now able to successfully detect all sorts of honey mixtures, he urges that our States adopt good laws, such as, for instance, Michigan has. In his opinion, the National Bee-keepers' Union is just the organization to enforce them, because good laws will not enforce themselves. Under the very able management of Mr. Newman, and with a modified constitution, he thinks the Union could make things lively. In the next *American Bee Journal* Mr. Newman replies. So far, he says, not one of the members of the Union has asked to have the organization reorganized.

Right here may we suggest that people generally will not express themselves unless given an opportunity to vote. If the General Manager would state, in a circular letter, the desirability of having the constitution changed, and submit to them a voting blank, which they could return, we feel sure that every one would ask for the change.

But to return: The present General Manager, on account of ill health, feels that he is unable to assume such added responsibility. It would need a younger man, he thinks—one full of vigor and push. Mr. Newman is *the* man, but if he is not available we would recommend some bee-keeper who is also a lawyer and legislator—such a person, for instance, as R. L. Taylor. With a Bee-keepers' Union of 5000 members, its chief could be salaried, and yet have necessary funds for carrying on the work of securing evidence, and arresting and prosecuting the guilty parties. But how about the membership? We feel that a very large number of our own subscribers (and this will be true of the constituency of other bee-papers) would fill a membership blank and plank down a dollar if a return envelope were placed before them.

The reason, we think, why there has not been a more hearty response before is because we have not yet given those who are *diffident* about writing, an opportunity to express themselves. At any rate, it would not cost a great deal to try the experiment. Out of our over ten thousand paid-up subscribers, to every one of whom we would submit blanks, we feel pretty sure we could get pretty close on to 2000 who would become members of that organization. The present Union does not offer enough substantial benefits to make the mass of bee-keepers feel the *necessity* of enrolling their names. But a Union that could not only defend them against disagreeable neighbors, but could also ferret out and carry on successfully prosecutions against adulterators—in fact, champion the rights of bee-keepers in all things, would offer sufficient inducements to call out a large support from bee-keepers. We should like to hear from our prominent contributors, for next issue, as well as from the General Manager through the *American Bee Journal*. There is yet time enough for us to get the matter in such shape that it can be presented before the national association at Washington.

THE WIRING OF FRAMES—TO WHAT EXTENT IS IT PRACTICED?

THERE has been considerable discussion of late, particularly in Canada, as to the advisability of wiring frames. Some have gone so far as to hold that very little of it is done now by practical bee-keepers. It so happens that we supply all the tinned wire used in this country, a large part of it in Canada, and in Australia, the manufacturers of that article not caring to job to more than one house. We find, by looking over our books, that we sold, last season, over two tons of No. 30 tinned wire, and that during a very poor year for bee-keepers. It takes anywhere from 6 to 10 ounces of wire for a hundred brood-frames, and this goes to show that anywhere from 700,000 to about 1,000,000 *brood-frames were wired during the last season;* and in a fairly good year it will not be unreasonable to suppose that the number would reach fully 1,500,000. From these figures it is pretty evident that the great majority of intelligent bee-keepers practice wiring, notwithstanding a few prominent bee-keepers argue that it is a useless expense and a waste of time. We have heard this argued soberly in conventions; and one or two, we remember, seemed to think it conclusive that wiring was unnecessary, simply because they never had a comb break down in moving bees nor in extracting. It is well to remember that "one swallow does not make a summer;" and it should also be remembered that colonies on fixed frames, with combs wired, can be handled much more rapidly than colonies on loose frames *not* wired. The expense of wiring 100 frames, if it is done at odd hours when the bee-keeper can not do much else, is about 10 cts. per 100. The expense of a few broken-down combs, meaning loss of bees and loss of time in fixing up in the busy season, to say nothing of the extra caution in handling the whole apiary on wired combs, more than pays for the expense of having every comb in the yard wired.

HONEY NOT GRANULATING NOT NECESSARILY ADULTERATED.

SOME of the friends have of late been sending us samples of honey which they assume to be adulterated, and ask that we commence proceedings against the guilty parties at once. With one or two exceptions we have pronounced all such to be strictly pure, genuine product from the flowers. One sample sent in, of beautiful thick clover honey, having a trace of basswood, was as clear as crystal. It had been standing on the shelf something over a year, and our correspondent thought that, as it had remained uncandied, it must, of course, be adulterated with glucose. The honey was so thick and thoroughly ripened that it did just what it ought to do—remain liquid. We have had samples of basswood and clover honey remain clear for three years, and yet we knew the goods to be strictly pure. The fact that honey remains liquid for a year or so is no sure evidence that it is adulterated, and we regret that, through the agency of honey-labels, the impression is conveyed that, unless the honey does granulate, it is not pure. It is a fact, however, that, when it does candy, it is pretty good evidence that it is pure; but it does not by any means follow that, when it does not do so, it is adulterated. It is well known that pure California sage honey isn't apt to candy at all. Now, while we are discussing ways and means for putting down adulteration, let us not go to the other extreme of calling a good many samples glucosed, and so, very possibly, place a ban upon the honesty of reputable bee-keepers and dealers.

COMMISSION MEN AND THEIR RELATION TO THE HONEY-PRODUCER IN THE FIGHT AGAINST ADULTERATION.

WE have received excellent reports in regard to the manner in which S. T. Fish & Co., commission merchants of Chicago, treat their patrons. Of all the commission houses in the West, we believe none are working more diligently for the suppression of all kinds of adulteration in honey than S. T. Fish & Co. They realize, as does every commission house, that adulteration does harm, not only to the bee-keeper, but to the seller of pure honey. One of their salesmen, at the Chicago convention, proposed that every commission house that quotes prices of honey in the bee-journals be requested to make an affidavit to the editors of the bee-journals, to the effect that they furnish only pure honey, and that the names of such houses furnishing such affidavits be published before the bee-keeping world. The only objection we see to this is, as was also suggested at the convention, that men are so dishonest as to adulterate would also be dishonest enough to furnish a false affidavit. While we do not believe that the commission men who quote prices in GLEANINGS would refuse to furnish us affidavits, as above, yet at the same time they might feel as if their name and reputation would be worth more than all the affidavits that could be produced. However, we should be glad to receive responses from all the honey-sellers who will be willing to work with us, and, in fact, with all the publishers of bee-papers, for the suppression of adulteration in honey, and at the same time furnish such evidence as may be in their possession, of persons adulterating, or place where the same is practiced. The source of such information would, of course, be held in strict confidence by us.

We feel thoroughly impressed with the belief that producers, honest honey-buyers, and honey-sellers should combine together in a union so as to fight successfully the common enemy. Such an organization might do nothing more than this: Prove that but little or no adulteration was practiced. At all events, the mere fact of such an organization being in existence would go a long way in preventing both those who contemplate adulterating from doing so, and those who have in the past been engaged to a greater or less extent in the business, from continuing in it. We have many good laws that rarely if ever need to be enforced; but it is necessary to have them on the statute-book, simply because of their *moral force.*

IT IS NOT GOOD THAT MAN SHOULD BE ALONE. —GEN. 2: 18.

AT the end of one of Dr. Miller's Straws, on page 795, he exhorts Bro. Wilder to look up a wife, etc. This thing has been on my conscience for some time. When I read of the lonely ranches where bee-men stay year in and year out, without a woman in the house or out around the house, it really troubles me. I remember the lonely ranches I visited. I remember the sad and lonely attempts that some of the bee-keeping brethren were making, and perhaps are making, at housekeeping. Now, please do not understand me as saying that I have any thing to complain of. Many of these bachelor ranches were neat and tidy. Money enough had been expended—yes, and more too—but yet the place was not a home. I just wonder how these poor fellows can stand it to live so. If there is anybody in the world who might be expected to get weary of life, and think of taking the life that God gave them, it seems to me it would be these people who think themselves obliged to live amid such surroundings. Again and again in California, Arizona, and other western places, we approached something that looked like a home. When we got nearer, the symptoms I had learned to dread became more and more painfully apparent. No matter how much money is expended, there seemed to be a listless air of death about the whole surroundings. It was a *shadow* of a home without the *substance.* The life had departed, or else had never been there at all. A *woman's* touch was wanting. Now, friends, it is wrong and it is wicked.* There are thousands of women living alone, with comparatively nothing to do. If you live and die that way, it is just committing a sort of wholesale suicide; for what would be the result if all men followed your example? Yes, Bro. Wilder, and all the other brethren, clear through from A down to Z, for heaven's sake look up some good woman who will be glad of the chance, and let her bring life and animation into that lonely, deserted home of yours. Do not let that deathlike stillness hang over the place you call *home* an hour longer. Remember that Bro. Root himself said it was not right, and God himself said it too, when the human family was first inaugurated: "And the *Lord God* said, It is not good that man should be alone."

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*If our Chinese brethren insist and persist in living after that fashion when they come to our shores, let them do it—no, no! I wouldn't *let* them do it. I would tell them that, unless they bring their wives and children, like white folks, they can not set foot on our shores; and then either make them go back or send by next ship for Mrs. "John Chinaman" to come along and bring the *children.*—A. I. R.

FACILITIES?

Look where you will, there's no bicycle plant so grandly complete as the one devoted exclusively to the manufacture of Victor Bicycles.

For years the work has gone on—and still at it—of making a model home for the best bicycles the world ever saw.

No other bicycle plant compares with this one, as no other bicycle compares with the Victor—or is ever likely to.

Victor catalog for the asking.

OVERMAN WHEEL CO.

SPRINGFIELD BRANCH: 128 WORTHINGTON ST.

THAT'S IT.

BEE-HIVES, SECTIONS, ETC.

We make the best goods and sell them cheap. Our Sections are far the best on the market. Our Works turn out the most goods of any factory in the world. Our goods are known as the best throughout the United States and Europe. Write for free, illustrated catalogue and price list.

G. B. LEWIS CO., WATERTOWN, WIS.

Please mention this paper.

Bee-Keepers' ❊ Supplies.

We are prepared to furnish bee-keepers with supplies promptly and at lowest rates. Estimates gladly furnished, and correspondence solicited. Our goods are all first-class in quality and workmanship. *Catalogue sent free.* Reference, First National Bank, Sterling, Ill. Address 1-24db

WM. McCUNE & CO.,
Sterling, Illinois.

☞In responding to this advertisement mention GLEANINGS.

JENNIE ATCHLEY'S HOME

will be at Beeville, Bee County, Tex., in 1893, ready with queens again. 19tfdb

PATENT WIRED COMB FOUNDATION
HAS NO SAG IN BROOD-FRAMES.

THIN FLAT-BOTTOM FOUNDATION
Has No Fish-bone in Surplus Honey.

Being the cleanest is usually worked the quickest of any Foundation made.

J. VAN DEUSEN & SONS,
Sole Manufacturers, 5tfd
Sprout Brook, Montgomery Co., N. Y.

Please mention this paper.

Muth's

Honey-Extractor.

Square Glass Honey-Jars,
Tin Buckets, Bee-hives.
Honey-Sections, &c., &c.
Perfection Cold-Blast Smokers.

APPLY TO
CHAS. F. MUTH & SON, Cincinnati, O.

S.—Send 10 ct. stamp for "Practical Hints to Bee-keepers."
Please mention this paper.

TAKE NOTICE!

BEFORE placing your orders for SUPPLIES, write for prices on One-Piece Basswood Sections, Bee-Hives, Shipping-Crates, Frames, Foundation, Smokers, etc. PAGE & KEITH,
14tfdb New London, Wis.

Please mention this paper.

NEW YORK CORRESPONDENCE

SCHOOL OF LAW

FOR HOME STUDY
243 BROADWAY N.Y.
INTRODUCTORY LECTURE FREE

Please mention this paper

BUFFALO, N. Y. Unsurpassed Honey Market.
BATTERSON & CO. Responsible, Reliable,
Commission Merchants. 18tfdb and Prompt.

SPECIAL NOTICES.

NEVADA COMB HONEY.

Scarcely a month has past since the carload arrived, and at this writing it is over half gone. If any of our readers desire to secure any of it they will need to apply early. See last issue for description and price.

CHOICE EXTRACTED HONEY.

We have a little nice extracted honey in 60-lb. cans at 10 cts. per lb. We have also secured five or six kegs (160 lbs. each) of very nice basswood extracted, that we can sell at 9 cts. per lb. There is still seven or eight hundred pounds of choice clover extracted left at Massena Springs, N. Y., which we offer at 9 cts., cans to be returned.

DAMAGED QUINBYS ALL SOLD.

Orders are still coming in for the damaged books mentioned a month ago. The "Quinby's New Bee-keeping" that were damaged are all sold; but we have plenty of the perfect copies at $1.50, postpaid. We still have a good supply of the slightly damaged Christian's Secret of a Happy Life at 15 cts. each, postpaid, or 10 cts. if sent with other goods by freight or express.

EXTRA EARLY AMERICAN PEARL ONION SEED.

We have finally, at this late date, succeeded in getting 5 lbs. of this seed that has been called for so much; but it is very scarce, and consequently very high. The best figures we can give will be as follows so long as it lasts: ¼ ounce, 15 cts.; ounce, 50 cts.; ½ lb., $3.00; 1 lb., $5.50. The above prices include postage. Our experiment last season, of starting the plants in the cold-frame, was a success, although, owing to the great wetness after they were put out in the fields, we did not get as many nice onions as we have heretofore, nor did they mature as early, nor get to be quite as large as those from sets planted the fall before. As many were unable to get sets, however, the next best thing for them to do is to buy the seeds, as above.

ROOT'S COMB FOUNDATION.

In connection with the announcement of special prices on sections in last number, we spoke of the fact of our greatly improving the quality of goods of our manufacture. This is especially true of comb foundation. Dadant's foundation has an enviable reputation, and the manufacturers deserve credit for the high standard of excellence they have set. We desire to say, however, the foundation we are now making is equal in every respect to Dadant's; in fact, we are "conceited" enough to think that it is, in some respects, superior. Here is a testimonial, just received in the mail as I write this, which is quite a surprise, unsolicited and unexpected:

> I can get goods cheaper in Chicago, but they do not keep the new style of separators, and I like your foundation better. It seems to me that your light brood does not buckle as much as Dadant's medium brood. I had some very nice combs built on your foundation the past season.
>
> Bishop Hill, Ill., Nov. 25. D. LINDBECK.

We should like the privilege of showing you how nice our foundation is, by sending you a sample, which we shall be pleased to send free on request. We do not hesitate, too, to "guarantee every inch of our foundation equal to the sample in every respect." We are just filling one order from a western dealer for *twenty-four hundred pounds*, besides a number of others not so large. As we run our mills by steam power, we can certainly make it as cheaply as any one. Write for samples; and if you can use 200 lbs. or over, ask for dealers' prices.

THE SUNDAY-SCHOOL TIMES.

Doubtless most if not all of our readers know what a Sunday-school is. You may also know of the *Sunday-School Times*, a most excellent 16-page weekly for Sunday-school workers, published in Philadelphia, Pa., at $1.50 per annum, but which we are able to club with GLEANINGS at $1.75 for the two, and both mailed from this office. The year begins this month, and you who wish to take advantage of this offer should lose no time in sending us your orders.

THE GOLDEN RULE.

Probably not all of our readers are as familiar with the Young People's Society of Christian Endeavor, which has been referred to occasionally in the Home talks of the senior editor. I take it that most of you do know of it, not only from reading your papers, but from contact with it in your church. To those who do not know of it I will say that you will do well to address the United Society of C. E., 50 Bromfield St., Boston, Mass., for Christian Endeavor literature, for I can assure you it is fully as important in the work of the church as the Sunday-school itself. There is also a weekly paper published for Christian Endeavor workers, called the *Golden Rule*, at 47 Franklin St., Boston, and this brings me to the subjcect of this notice. I can not give you an adequate idea of the value of this paper. Drop a postal to the above address for a sample copy, and examine it for yourself. It claims to be only 16 pages, but they have given twenty and over for several months, and from all appearances they will keep it up. It contains each week, among other very excellent things, thrilling letters from F. E. Clark, D. D., founder of the Christian Endeavor society, who is now on a trip around the world in the interest of Christian Endeavor. The regular price of the paper is $2.00 a year. We are able to offer it clubbed with GLEANINGS, one year each, for $2.00 only. New subscribers to either for 1893 will receive the remainder of this year free. In ordering, be kind enough to state whether you are a new subscriber or renewal to the *Golden Rule*, which now has about 100,000 subscribers. It is so good, however, that we wish it might have twice the number.

THE NEW TOMATO BOOK.

Among the many pleasant notices we have received from the press, we select the following from the *American Agriculturist:*

TOMATO CULTURE.—In three parts. Part First—Tomato Culture in the South. Part Second—Tomato Culture, Especially for Canning-Factories. Part Third.—Plant-Growing for Market, and High-Pressure Gardening in General. A Practical Book for those who work under either Glass or Cloth as a Protection from Frost. By J. W. Day, D. Cummins, and A. I. Root. Medina: A. I. Root, 1892. 135 pp., il., 16mo, paper

The first part of this industrial book is written by an exceedingly practical Southern planter, who works in the fields among his men, and shows them how by working himself. J. W. Day has made a practical success of hot-beds and cold-frames covered with cotton cloth instead of glass, in which to start the plants for the hundreds of acres of tomatoes he raises yearly for the Chicago market. The second part is written by an equally practical Northern grower of tomatoes, D. Cummins, who successfully heats his plant-beds with steam sent through drain tiles. The third part, telling how to support a family on one-fourth acre of ground, is written by A. I. Root, who claims relationship with every boy who raises popcorn, chickens, honey, strawberries, or tomatoes, and thinks that, when our great nation of people can offer the boys encouragement in the way of good prices, we shall be on the road to better things. He praises especially those boys who go into the fields and work for themselves under God's clear sky instead of hanging around the factories, begging for a chance to be "bossed." The raising of lettuce and onions, and the marketing of garden crops, is fully treated. Sold by Orange Judd Company. Price, postpaid, 40 cents.

CALIFORNIANS, ATTENTION.

We have completed arrangements with the firm of G. G. Wickson & Co., who do business both in Los Angeles and San Francisco, to keep a general stock of our supplies at both places for the convenience of California bee-keepers. We expect, by Jan. 1st, to send a carload to each point. We can not, of course, send a full line of every thing we advertise in our catalogue, but will send a good general line, including comb foundation and foundation-mills; Novice and Cowan extractors, 2, 4, and 6 frame; 8-frame Dovetailed hives; sections, 1⅞, 1¾, and 7 to foot, and many things too numerous to mention. We commend our California customers to this firm; and as soon as you read this, if you will at once sit down and write to them, naming the list of goods you are likely to require, they will thus be enabled to get what you need, including all odd-sized things that could not be well kept in stock. Your prompt attention to this will not only assist them, but be a great benefit to you.

RENO, NEV., AND VICINITY.

Our friends in and around Reno, Nev., will do well to write to W. K. Ball, of Reno, with a list of their needs in the line of bee-keepers' supplies. We are just loading a car of Dovetailed hives and sections for hives which he writes are all sold, and he will want another car when this one arrives. Let him know what you need, that he may get it for you in his next carload.

OREGON AND WASHINGTON.

Bee-keepers in these States should write to F. L. Posson & Son, Portland, Oreg., for price list of bee-keepers' supplies. We are just loading for them two carloads of supplies, comprising a good general line, and including over a ton of comb foundation. Considering the high freights in less than carload lots, you can do better by dealing with them direct than to send us your orders.

BEE-KEEPERS OF MARYLAND AND DELAWARE,

and those easily reached from Baltimore, will please take note that we have arranged for the sale of our supplies in that territory with the Baltimore Farm Implement Co., of Baltimore, Md., and now have an order for a carload to be sent to them. Write them, with a list of your requirements for the coming season.

OTHER DEALERS.

Our friends in Central and Eastern New York and New England will bear in mind that we have quite a full line of supplies on hand at Syracuse, N. Y., with F. A. Salisbury in charge. He will be pleased to hear from you.

Those in the vicinity of Des Moines, Iowa, hardly need reminding that a full line of our supplies is kept there by Jos. Nysewander, and we shall be loading a car for that point within a few days.

The bee-keepers of Colorado can obtain our supplies from Barteldes & Co., of Denver, who keep quite a full line, and issue a price list which they will be pleased to mail on application.

Later on we may announce the names of other dealers in other localities where you can obtain our goods without sending so far.

RENEW EARLY.

The time is near at hand when the paid subscription of many of our readers will expire. Probably none of you like to be in arrears any better than we like to have you. As an inducement for you to act promptly, and send in your renewals before the time expires for which you have paid, we offer you the choice of the following premiums. Now, please note carefully the conditions on which we make this offer. Those who are in arrears can not claim a premium till they first pay up; then, if they remit for a year in advance, they may for that claim a premium. The premium must be claimed when the subscription is sent; it can not be allowed afterward. Postage for mailing, and full subscription of $1.00, must be sent to secure the premium, and it must be sent *before* your subscription expires.

The list of premiums from which you may select:

DZIERZON'S THEORY, a pamphlet of 50 pages, in paper cover; price 10c postpaid, or sent free on above conditions. This is something that every enthusiastic lover of the honey-bee should read.

THE CHRISTIAN'S SECRET OF A HAPPY LIFE. This book should be in the hands of every one who desires to live a happy life, and who does not? It is so popular that over 50,000 have been sold since its publication a few years ago. We received from the publishers as many as 1250 in one shipment. This edition was revised and enlarged, so that the book now contains over 200 pages. Price, cloth bound, 50 cts. In paper, 25 cts. Postage extra, 8 cts. for the cloth and 6 cts. for the paper bound. A large reduction will be made in quantities. The cloth book given postpaid for two subscriptions, or the paper for one new subscrrption with your own renewal. Cloth edition given with your own renewal only, and 35c extra, with 8c postage; the paper edition for 15c extra and 5c postage. We have some slightly damaged paper edition that we will give free with your renewal and 5c for postage. If you send one new name with your renewal you may select any three premiums that we give for a renewal, being sure to include the postage; or you may retain 25c in cash for your commission.

PEABODY'S WEBSTER'S DICTIONARY. 25,000 words and phrases, and illustrated with 250 engravings; cloth bound. This is the one we have been selling for years at 15 cts. We thought we had done something wonderful when we offered so large a dictionary for 15 cts., but we are now able to sell them for a dime. Just think of it! Postage extra, 5 cts.

ONE-SYLLABLE PRIMER. 6x8; 48 pages, full of pictures; something that will always be wanted as long as there are children in our homes. Postage 3 cents.

POULTRY FOR PLEASURE AND PROFIT. 48 pages, and 20 illustrations. A complete little book of instructions. It treats of the best varieties for pleasure and profit; how to house and yard; how to manage; how to feed; diseases, incubation, etc. It is a 25-cent book; but by getting 1000 of them we can sell them for 10 cents. Postage 1 ct.

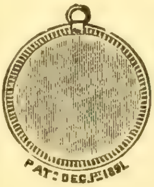
THE HORSE AND HIS DISEASES. By Dr. B. J. Kendall; 100 pages and many illustrations. Over 500,000 of these books have been sold, because they are so popular and complete, for a small handbook. It gives the symptoms of most diseases, and treatment for the same. This is another 25-cent book that we got down to a dime by taking 1000 of them. Postage 3 cts.

SILK AND THE SILKWORM. This is a complete work of instruction on silk culture, by Nellie Lincoln Rossiter, a practical silk culturist; 32 pages. Silk culture is the favorite pursuit of many ladies in our land; and all who are interested will find this little work very instructive. The price printed on it is 25 cents, but we sell them for 10 cts. Postage 1 ct.

NEW TESTAMENT, NEW VERSION. 434 pages, printed in nonpareil type. This should be in the possession of every student of the New Testament. Even if it does not come into common use, it is helpful to know what changes in translation the New Version gives. Postage 5 cts.

JOHN PLOUGHMAN'S TALKS AND PICTURES. By Charles Spurgeon; 128 pages, and a picture on almost every page. John Ploughman talks plainly, and makes a good point in every talk. It is by no means dry reading, either. Postage 3 cts.

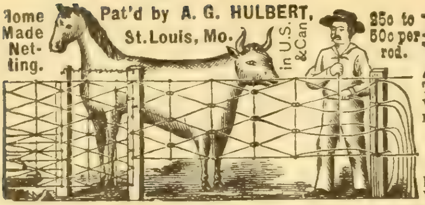
AUGITE STOVE-MAT.



How much of domestic happiness is marred because the dishes prepared for dinner are scorched or burned! How annoying to have something boil over on the stove, as it is likely to do sometimes with the most vigilant watchfulness. All these troubles can be avoided by using the stove-mat shown herewith. We were somewhat skeptical about it till we tried it in our home, and now we are convinced that there is nothing that can lay a better claim to the term "a household necessity" The mat is made of asbestos, bound with sheet steel, crumpled around the edge, 9½ inches in diameter, and is indestructible. Though it is almost as soft as felt, it will not burn. You can place it directly on the blaze of a gasoline-stove, over the gas-jet, in the fireplace, or on the stove, and it will prevent burning of all kinds of food that ordinarily require stirring. No stirring is required for oatmeal, milk, rice, custards, blanc mange, jellies, butters, catsups, apple sauce, etc. In fact, nothing will burn on it. Coffee will not boil over if the pot is on the mat; bread toasts nicely on it. Try it and be convinced. For the nursery there is nothing equal to heat the milk and food for the baby. If a grate fire, lay the mat on the open fire. If the mat becomes soiled, do not wash or scrape, but turn the soiled part next to fire, and burn until clean. The mat regularly retails for 25 cts. We will furnish them at 20 cts. each; $2.00 per doz. By mail, 6 cts. each extra, or 65 cts. per doz. We will give one free postpaid for a new subscription to GLEANINGS, with your own renewal and $2.00.

MORE ABOUT THE STOVE-MATS.

That augite stove-mat proves to be one of the best things we have discovered in the way of household conveniences, for many a day. We have disposed of two gross in less than two months, and now have 5 gross on the way from the factory. We can make special prices in quantities of a gross or more. You ought to see the women who use it smile, and you will do so too if you will try it.


Home Made Netting.
Pat'd by A. G. HULBERT, St. Louis, Mo.
in U.S. & Can
25c to 50c per rod.

SAFE, DURABLE FENCE; ONLY $80 PER MILE.

LAND-OWNERS *save one-half the cost avoid dangerous barbs*

Agents *make $200.00 per month and expenses* **Cash**

The best local and travelling agents wanted everywhere. Write at once for circulars and choice territory; address **A. G. Hulbert**, Patentee, care of

Hulbert Fence & Wire Co. Manufacturers. **904 OLIVE STREET, St. Louis, Mo.**

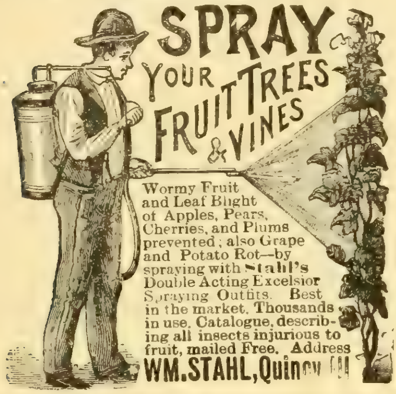
Factory Catalogue with 200 engraved designs and prices, sent free to any who want fancy iron and wire work or city, cemetery and farm fences, etc.

In responding to this advertisement mention Gleanings.

AUSTRALIA.

Wanted every bee-keeper in Australia to send for my large illustrated catalogue of bee-keepers' supplies, American queens, etc., etc. Post free.
18-23db **H. L. JONES, Goodna, Queensland.**

Please mention this paper.


SPRAY YOUR FRUIT TREES & VINES

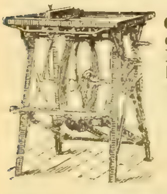
Wormy Fruit and Leaf Blight of Apples, Pears, Cherries, and Plums prevented; also Grape and Potato Rot—by spraying with **Stahl's** Double Acting Excelsior Spraying Outfits. Best in the market. Thousands in use. Catalogue, describing all insects injurious to fruit, mailed Free. Address
WM. STAHL, Quincy, Ill.

In responding to this advertisement mention Gleanings.

800 FERRETS. a fine lot of **Scotch Collie Pups** and a trained bird-dog for sale. Price list free. **N. A. KNAPP, Rochester, Lorain Co., Ohio.**
18tfdb

In responding to this advertisement mention Gleanings.

Barnes' Foot-Power Machinery.



Read what J. I. Parent, of Charlton, N. Y., says—"We cut with one of your Combined Machines last winter 50 chaff hives with 7-inch cap, 100 honey-racks, 500 broad frames, 2,000 honey-boxes, and a great deal of other work. This winter we have doubled the amount of bee-hives, etc., to make, and we expect to do it all with this saw. It will do all you say it will." Catalogue and Price List free. Address W. F. & JOHN BARNES, 545 Ruby St., Rockford, Ill.

When more convenient, orders for Barnes' Foot-Power Machinery may be sent to me. A. I. Root.
23tfd

VANDERVORT
COMB-FOUNDATION MILLS.

Send for samples and reduced price list.
1tfd **JNO. VANDERVORT, Laceyville, Pa.**

OTTUMWA BEE-HIVE FACTORY.

Bee-keepers, look to your interests. Every thing in the line of bee-supplies constantly on hand. Price list free. **Gregory Bros. & Son,**
1-23d Ottumwa, Ia. South side.

Please mention this paper.

SECTIONS.

$2.50 to $3.50 per M. Bee-Hives and Fixtures cheap. NOVELTY CO.,
6tfdb **Rock Falls, Illinois.**

In responding to this advertisement mention Gleanings.

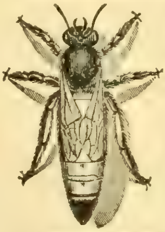
Eastern Supply House.

We furnish every thing used in the apiary, and at bottom prices. Illustrated circular free.

I. J. STRINGHAM, 92 Barclay St., N. Y.

21-20db Please mention this paper.

FOR SALE. **A No. 2 Corley Saw Mill;** 3 head-blocks with patent board dogs; 52-inch Disston circular saw; 64 feet track. Capacity of mill 8000 to 12,000 feet in ten hours. Mill is nearly new. Warranted to be in first-class running order. **M. H. FAIRBANKS, HOMER, CORTLAND CO., N. Y.**



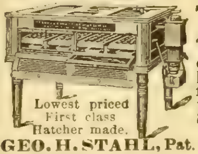
WESTERN BEE-KEEPERS' SUPPLY HOUSE.

ROOT'S GOODS can be had at Des Moines, Iowa, at ROOT'S PRICES. The largest supply business in the West. Established 1885. Dovetailed Hives, Sections, Foundation, Extractors, Smokers, Veils, Crates, Feeders, Clover Seeds, etc. Imported Italian Queens. Queens and Bees. Sample copy of our Bee Journal, "THE WESTERN BEE-KEEPER," and LATEST CATALOGUE mailed FREE to Bee-keepers.
JOSEPH NYSEWANDER, Des Moines, Iowa.

In responding to this advertisement mention Gleanings.

SAVE MONEY.—Send to J. P. H. Brown, Augusta, Georgia, for his price list of supplies. Hives and foundation at wholesale rates. 4tfdb

HATCH CHICKENS BY STEAM
WITH THE IMPROVED
EXCELSIOR INCUBATOR.



Thousands in Successful Operation.
SIMPLE, PERFECT, and SELF-REGULATING.
Guaranteed to hatch a **larger percentage** of fertile eggs, at **less cost,** than any other Incubator. Send 6c. for Illus. Catalog. Circulars Free.
GEO. H. STAHL, Pat. & Sole Mfr., Quincy, Ill.

In responding to this advertisement mention Gleanings.

A Four-Color Label for Only 75 Cts. Per Thousand.

Just think of it! we can furnish you a very neat *four-color* label, with your name and address, with the choice of having either "comb" or "extracted" before the word "honey," for only 75 cts. per thousand; 50 cts. per 500, or 30 cts. for 250, postpaid. The size of the label is 2½x1 inch—just right to go round the neck of a bottle, to put on a section, or to adorn the front of a honey-tumbler. Send for our special label catalogue for samples of this and many other pretty designs in label work.

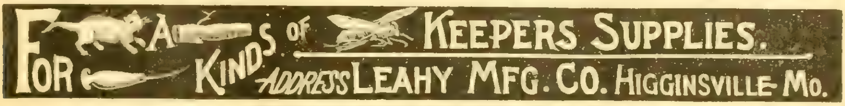
A. I. ROOT, Medina, O.

Root's Goods for the West.

Bee=Keepers of the West

Should remember that we have established at Des Moines, Iowa, a **WESTERN BRANCH** where a full line of Bee-keepers' Supplies are kept for sale. You can save time and freight by ordering from our Western Branch. We have engaged Jos. Nysewander to take charge of this business, who will give all orders good, careful, and prompt attention. Send for his price list for '93. Address

Joseph Nysewander, Des Moines, Iowa.


FOR
A
KINDS OF
KEEPERS SUPPLIES.
ADDRESS LEAHY MFG. CO. HIGGINSVILLE MO.

In writing advertisers please mention this paper 21tfdb

DOVETAILED HIVES, SIMPLICITY HIVES,

SECTIONS, EXTRACTORS, ETC.
FULL LINE OF
BEE-KEEPERS' SUPPLIES.
60-PAGE CATALOGUE. 1tfdb

J. M. JENKINS, WETUMPKA, ALABAMA.

☞In responding to this advertisement mention GLEANINGS.

ROOT'S GOODS FOR THE EAST.

Bee-Keepers of the East should

Bear In Mind that we have established at Syracuse an **Eastern Branch**

where our Bee-keepers' Supplies are kept for sale, and prompt shipment. You can save time and freight by ordering from our Eastern Branch. We have engaged Mr. F. A. Salisbury to take charge of this business, and he will treat you well. He will be pleased to send you a list of goods kept in stock.

Address all orders,

EASTERN BRANCH, F. A. SALISBURY, Agent, Syracuse, N. Y.

Bee - Keepers' * Supplies

We are prepared to furnish bee-keepers with supplies promptly and at lowest rates. Estimates gladly furnished, and correspondence solicited. Our goods are all first-class in quality and workmanship. *Catalogue sent free.* Reference, First National Bank Sterling, Ill. Address 1-24db

WM. McCUNE & CO.,
Sterling, Illinois.

☞In responding to this advertisement mention GLEANINGS.

JENNIE ATCHLEY'S HOME

will be at Greenville, Hunt County, Tex., in 1893, ready with queens again. 19tfdb

---

Queens From Best of Stock. By Doolittle's Method. 1893
11tfdb **J. B. CASE, Port Orange, Fla.**

VIOLINS MURRAY & HEISS. CLEVELAND OHIO.
MUSICAL GOODS OF ALL KINDS. **GUITARS** CATALOGUE FREE
MANDOLINS

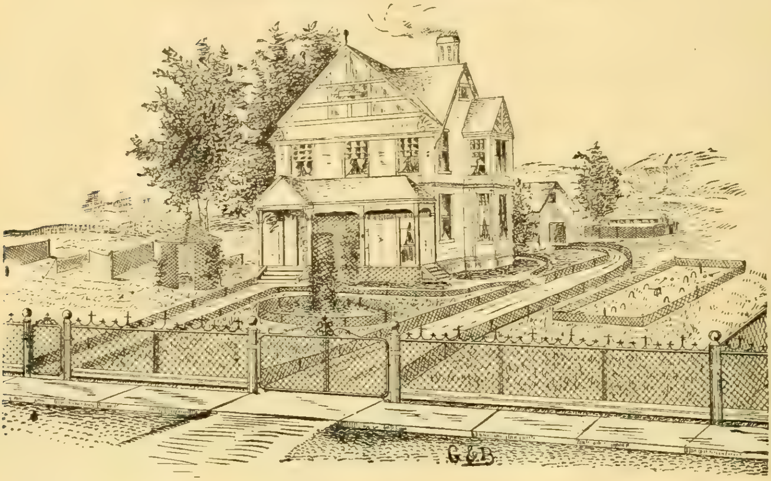
Please mention this paper.

FALL Eggs and Plants, Fowls, Poultry-books and Papers; finely ill. circular free. Address GEER BROS., St. Marys, Mo.,
14tfdb Or, H. B. GEER, Nashville, Tenn.

Please mention this paper

STEEL WIRE NETTING and FENCING.

GALVANIZED AFTER BEING WOVEN.



The cut above illustrates some of the many uses to which this wire netting and fencing may be put about the home. You will notice back of the house a poultry-yard. Probably the greater part of the netting heretofore sold has been used for fencing poultry, and nothing can be devised that is cheaper, better, or more durable.

It is the cheapest, costing less than 75 cts. per rod for posts, staples, and all. It will last a lifetime, and never needs repairing, because it can't get out of order. Being galvanized after it is woven, it will never rust. It is easily put up and taken down. It can not be blown down, as the wind goes right through it. On this account you don't need very heavy posts where the fence is used for poultry only. It does not keep out the light and fresh air, so needful to poultry. It is neat and ornamental, and always looks well if properly put up. It is so invisible that fowls can not see the top, and will not fly over. You can see inside as well as if there were no fence at all.

But the uses of wire netting are becoming more and more diverse. If you wish to let poultry run, and have flower-beds, or choice crops that you wish to keep from them, all you need is some of the lightest netting, not over one to two feet wide, stretched around as shown in cut above. This can be attached temporarily to light stakes, and quickly removed when desired. For holding up green peas and beans, tomatoes, and other such crops, nothing could be cheaper or more convenient than the light narrow netting, 12 or 18 inches wide. You notice, by table of prices below, that the light weight, No. 20, 2-inch mesh, is only 90c a roll, 150 ft. long, 12 in. wide. This is indestructible, and, if properly handled, can be used year after year, over and over again. You could not furnish any thing else half as good for the money; and the time of putting this up and taking care of it again after the crop is gathered is insignificant compared with sticks or brush, or any thing else that can be used.

For stock fences the heavier weights are used, or the cottage fencing, which is extra heavy and well made. There are a great many makes of netting and fencing, and it is needless to say that some are inferior to others. We still handle the G. & B. brand, the same as we have always sold since we began selling this class of goods, because we believe it to be the best value for the money of any on the market. The goods for this year are better than ever; being made of stiff steel wire it will not kink and get out of shape so easily. Our contract for the coming year enables us to make very low prices. The 3-inch mesh we are able to offer at about ⅓ less than last year, and other sizes over 10 per cent lower, or as low as we have ever been able to sell it before.

COTTAGE GATES.

There are many sizes of these gates, made with plain and ornamental top, all of which, with many other interesting things, are listed in our 28-page netting and fencing catalogue, mailed on application. Gates like above, 3 feet wide, are worth $2.70 each, 3 feet high; $2.85 for 3½ feet high, and $3.00 for 4 feet, including latch and hinges; with plain top, 30c each less. We do not keep these in stock, but ship from New York or Chicago. This is also true of most of the netting and fencing listed below. We have in stock at Medina all widths of 2-inch No. 19. Everything else listed below will be shipped from New York or Chicago.

We are prepared to make special low prices to dealers, and those who buy in large quantities. On goods shipped from New York or Chicago we must add 25 cts. for cartage on each shipment, large or small. When you pick out from the table what you want, and deduct the discount for quantity, if 5 rolls or more are ordered, then add 25 cents for cartage. The following table gives our net price per roll of all sizes, in lots of from 1 to 5 rolls. On orders for 5 rolls, deduct 5 per cent; 10 rolls, 10 per cent; 25 rolls or more, 15 per cent. Less than full rolls or parts of rolls cost double the full roll price, because of trouble of unrolling, measuring, etc. Always order full rolls if possible.

—Size—		Price 1 roll 150 ft. long and fol'wing widths.								
Mesh	No. Wire.	12 in.	18 in.	24 in.	30 in.	36 in.	42 in.	48 in.	60 in.	72 in.
3 in	20	$ 90	1 35	1 80	2 25	2 70	3 15	3 60	4 50	5 40
3 "	19	1 20	1 80	2 40	3 00	3 60	4 20	4 80	6 00	7 20
3 "	18	1 50	2 25	3 00	3 75	4 50	5 25	6 00	7 50	9 00
3 "	17	1 90	2 85	3 80	4 75	5 70	6 65	7 60	9 50	11 40
3 "	14	2 50	3 75	5 00	6 25	7 50	8 75	10 00	12 50	15 00
2 "	20	90	1 35	1 80	2 25	2 70	3 15	3 60	4 50	5 40
2 "	19	1 00	1 50	2 00	2 50	3 00	3 50	4 00	5 00	6 00
2 "	18	1 30	1 95	2 60	3 25	3 90	4 55	5 20	6 50	7 80
2 "	17	1 70	2 55	3 40	4 25	5 10	5 95	6 80	8 50	10 20
2 "	16	2 10	3 15	4 20	5 25	6 30	7 35	8 40	10 50	12 60
2 "	15	2 90	4 35	5 80	7 25	8 70	10 15	11 60	14 50	17 40
1½	20	1 20	1 80	2 40	3 00	3 60	4 20	4 80	6 00	7 20
1½	19	1 40	2 10	2 80	3 50	4 20	4 90	5 60	7 00	8 40
1½	18	1 80	2 70	3 60	4 50	5 40	6 30	7 20	9 00	10 80
1¼	19	2 20	3 30	4 40	5 50	6 60	7 70	8 80	11 00	13 20
1 "	20	2 40	3 60	4 80	6 00	7 20	8 40	9 60	12 00	14 40
1 "	19	2 80	4 20	5 60	7 00	8 40	9 80	11 20	14 00	16 80
1 "	18	3 30	4 95	6 60	8 25	9 90	11 55	13 20	16 50	19 80
¾	20	3 60	5 40	7 20	9 00	10 80	12 60	14 40	18 00	21 60
¾	19	4 30	6 45	8 60	10 75	12 90	15 05	17 20	21 50	25 80

¾ or 1 inch staples for above, 15c per lb.

28-page netting and fencing catalogue free on request.

A. I. ROOT, = = MEDINA, OHIO.

HONEY COLUMN.

CITY MARKETS.

ALBANY.—*Honey.*—We have received up to date 328 cases of comb, and 225 bbls., kegs, and tin packages of extracted honey, and have but a very small stock of either at present on hand. After the holidays the demand for comb honey usually drops right off, and extracted begins to move freely; but this season extracted began to sell early; and at present, stock on hand is already quite small, which would indicate higher prices later on. Comb, selling slowly at 14@16 for white clover; 9@10 for buckwheat. Large sections, 1c per lb. less. Extracted, light, 8@9; dark, 7@8.

Dec. 10. CHAS. MCCULLOCH & CO.,
393-397 Broadway, Albany, N. Y.

NEW YORK.—*Honey.*—Demand for comb honey slacking off a little; supply sufficient for demand. We quote as follows: 1-lb., fancy, 15@17; fair, 12@14; 2-lb., fancy, 13@14; fair, 10@12; 1-lb. buckwheat, 10@11; 2-lb., 9. Extracted, clover and basswood, 8@9; buckwheat, 6@7; Southern, per gal., 68@75. *Beeswax*, 26@28.

CHAS. ISRAEL & BROS.,
Dec. 8. 110 Hudson St., New York.

BOSTON.—*Honey.*—Comb honey is selling slow—very much slower than we like to have it; and it is our experience that, when we start honey at a high price, it sells hard right through the season. We quote you our market nominally, at 17@18c for best white honey, 1-lb. sections. Extracted, 8@9.

Beeswax.—None on hand.

BLAKE & RIPLEY,
Dec. 9. Boston, Mass.

KANSAS CITY.—*Honey.*—The demand is fair for comb, and good for extracted. We quote: Comb, 1-lb., white, 16@17; amber, 12@15; extracted, white, 7½; amber, 5@6. *Beeswax*, 22@25.

CLEMONS-MASON COM. CO.,
Dec. 8. Kansas City, Mo.

NEW YORK.—*Honey.*—Fair demand for choice clover, 1-lb., at 14@15; 2-lb., 13@14. Buckwheat 1-lb. paper caps wanted. Buckwheat selling at 9@10½, according to quality and style. *Beeswax.*—There is no change.

THURBER-WHYLAND CO.,
Dec. 8. New York.

BUFFALO.—*Honey.*—Choice clover honey is selling in our market at present at 15@16; No. 2 grade, 11@13; buckwheat, 9@10, less our commission. Our market is light, and, no doubt, liberal amounts could be handled here satisfactorily.

BATTERSON & CO.,
Dec. 7. 167, 169 Scott St., Buffalo, N. Y.

CHICAGO.—*Honey.*—Arrivals are equal to the demand, and there is quite a little that is not up to good grade that sells slowly. Best white comb brings 18c. Extracted, 6@9. *Beeswax*, 22@25.

R. A. BURNETT,
Dec. 7. 161 So. Water St., Chicago, Ill

CINCINNATI.—*Honey.*—Demand is fair for extracted and comb honey, with a fair supply. Good extracted honey brings 6@8 on arrival. Best white comb honey, 14@16 in a jobbing way. *Beeswax* is in fair demand; arrivals good. It brings 22@25 for good to choice yellow on arrival.

CHAS. F. MUTH & SON,
Dec. 7. Cincinnati, O.

CLEVELAND.—*Honey.*—A No. 1 white honey in 1-lb. sections, 15; No. 2, 12. Market slow and well filled up. *Beeswax*, 22@24. Demand good.

REYNOLDS & WILLIAMS,
Dec. 7. 80 & 82 Broadway, Cleveland, O.

ST. LOUIS.—*Honey.*—Choice white-clover honey in 1-lb. sections is rather scarce, and selling at 17@18; good fair stock from 14@16; broken and dark, 8@10; extracted honey in barrels, from 5@6; in cans, 7@8. The indications are, that, for the next two months, honey will be in demand at full quotations.

Beeswax.—Prime stock sells readily at 24; choice selections worth 26. W. B. WESTCOTT,
Dec. 8. St. Louis, Mo.

MINNEAPOLIS.—*Honey.*—We can report to you this week a splendid market on honey. Fancy white selling at 20c; choice at 17@18. Dark at 14@15c; common broken lots, 12c. Strained, in 10-lb. kegs, 10@12c; large barrels, 8c.

Dec. 9. J. A. SHEA & CO.,
14 & 16 Hennepin Ave., Minneapolis, Minn.

DETROIT.—*Honey.*—Comb honey in fair demand. Best white, 14@15. Extracted, 8@8½. *Beeswax*, 25@26.

Dec. 8. M. H. HUNT, Bell Branch, Mich.

KANSAS CITY.—*Honey.*—Demand good, supply large. White 1-lb., 17c. Extracted, 6@8.—*Beeswax.*—None on market. HAMBLIN & BEARSS,
Dec. 7. 514 Walnut St., Kansas City, Mo.

FOR SALE.—1000 lbs. of well-ripened extracted honey in 60-lb. square cans, 2 in case. Sample by mail upon request. EZRA BAER, Dixon, Ill. 24d

FOR SALE.—Three bbls. and twelve 60-lb. cans fine Spanish-needle honey. EMIL J. BAXTER,
Nauvoo, Hancock Co., Ill.

Illustrated Home Journal
CENTS
50 A YEAR

Interesting Monthly for
The Family and Fireside
Welcome in every Home.
o
Large Premiums for Clubs.
Sample Copy sent Free.
o
THOMAS G. NEWMAN,
147 South Western Ave.,
CHICAGO, - - ILLS.

FOR SALE. About 1700 lbs. of pecan nuts. Samples sent to any one making an offer. 24d
R. A. JANSEN, Wharton, Tex.

Wants or Exchange Department.

WANTED.—To exchange 20 acres fine land, adjoining Garden City, Kansas. All under irrigation; 10 acres in alfalfa, 10 in garden, for cash, San Diego, Cal., city or country property, or offers.
H. L. GRAHAM, 850 6th St., San Diego, Cal.

WANTED.—To exchange one Spencer repeating rifle, value $8; also a good small printing-office complete, worth $14. What have you to offer? 24-1d
W. H. LAWS, Lavaca, Ark.

WANTED.—To sell or exchange a Daisy garden-drill. New. EDGAR EASTERDAY, Nokomis, Ill.

KIND WORDS FROM OUR CUSTOMERS.

I could not do without GLEANINGS, for I have received $5.00 worth of money from it besides the good reading in the Home talks.

Deshler, Ohio, Nov. 18. THOMAS OBERLITNER.

OUR BUSHEL BOXES.

I am glad to say that those "shooks" were as good as they could be—not a poor stick in the lot. I hated to order, for fear of getting a lot of stuff not worth making up, and it gives me pleasure to compliment you—or, rather, give you your due—unsolicited.

Pittsburgh, Pa., Nov. 11. C. E. RUMSEY.

A KIND WORD FOR THE WHEEL.

I have read with much interest your article on the wheel, and can indorse all you say about it. I have used the bicycle for six years and now have my third wheel, to keep up with the improvements. My two boys have wheels also, and the way we economize time, while taking comfort, health, and pleasure, is something remarkable. I suppose the improvements will be still surprising for the next six years, and we must and will have better roads by the advent of the bicycle. W. O. SWEET.

West Mansfield, Mass., Dec. 9.

Best Articles from Best Men.

With the Dec. issue the Bee-Keepers' Review is five years old. This last number of the fifth year is unique. Its editor asked each of several of the best bee-keepers to write what he (the bee-keeper) considered *the best article he ever wrote.* Each was to go over, in his mind, the bee-keeping of the past, see how it had progressed first in this direction, then in that; met this obstacle, then that; then consider the bee-keeping of the present, its needs and necessities; and then try and give the best advice possible to give in a single article as to the course that bee-keepers ought to pursue in the future to make their pursuit more pleasant and profitable. If you wish to know in which direction the leaders in apiculture believe that bee-keepers ought to work to better their condition, send 10 cents for the Dec. Review. With it will be sent the Oct. and Nov. issues. By the way, the Nov. number gives the views of such men as Doolittle, Taylor, and Miller upon that vexed question of "Sugar-Honey Production." There will also be sent a sheet upon which are printed nearly a dozen portraits of the Review's leading correspondents (among them the editor), together with a list of all the special topics that have been discussed, the numbers in which they may be found, and the prices at which they will be sent. A proposition is also made whereby these back numbers may be secured at *half price.* The price of the Review is $1.00 a year. The Review one year and "Advanced Bee Culture," for $1.25. New subscribers for 1893 get the last three issues of this year free.

W. Z. HUTCHINSON, Flint, Mich.

Best on Earth.

More than one hundred thousand Bingham & Hetherington Honey-knives and Bee-smokers in daily use. Illustrations sent free.

Bingham & Hetherington,
Abronia, Mich. 7tfdb

FOR SALE. Nineteen colonies brown bees, in movable-frame hives. Most of them hung on improved Hoffman frames. Contain now honey enough to pay for some. Will sell for $3.00 per colony, as they stand, if taken at once.

John Davis, Gerlona City, Ark.

A NEW INVENTION in FRAMES.

No more crushing of bees, no sticking together of frames. The Hoffman frame thrown in the shade. Send a postal and learn all about this new Frame and manner of using in hives. If you want to see or learn something that will please you write to

N. BOOMHOWER, Callupville, N. Y.

☞In responding to this advertisement mention Gleanings

DON'T

purchase a Self-Hiver until you have read about the Perfection in our 18-page circular.
Sent free. Address 24-tfdb

HENRY ALLEY, WENHAM, MASS.

Bee-Hives.

Dovetailed or otherwise. All kinds of bee-supplies.
Write for free catalogue.

W. H. PUTNAM, River Falls, Pierce Co., Wis.

Now, I've Got You

Just read our wonderful offer—nothing like it heard of before in bee-publishing. We Give FREE to every new subscriber to the Weekly

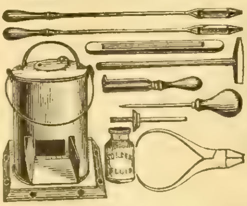
AMERICAN BEE JOURNAL

who sends $1.00 for a year's subscription, a copy of "Newman's"

BEES AND HONEY

—a $1.00 book FREE. Has 225 pages, 200 illustrations, bound in heavy, tinted paper. Just the book for the beginner or expert. YOU ought to have it. Send us 2 new names at $1.00 each for the Bee Journal one year & get the book as a premium; we also send it to each of the 2 subs. Sample Journal free

GEO. W. YORK & CO.
199 E. Randolph St.,
CHICAGO, - ILL.



OATMAN'S
SOLDERING AND REPAIR KIT

Consists of fire-pot, soldering-irons, solder, and soldering-fluid, with tools compl'te as shown in cut, with directions for soldering different metals, and how to keep your soldering-irons in shape. Whole kit, boxed, 12 lbs. Shipped on receipt of $2.00. Agents wanted.

O. & L. OATMAN,
8-7db **Medina, Ohio.**

BEE SUPPLIES RETAIL —AND— WHOLESALE.

Everything used in the **Apiary.** Greatest variety and **largest** stock in the West. New catalog, **54** illustrated pages, free to bee-keepers. **E. KRETCHMER, RED OAK, IOWA.**

Please mention this paper. 2tfdb

Porter Spring Bee-Escape. A Great Success.

We guarantee it to be far superior to all others. If, on trial of from one to a dozen, you do not find them so, or if they do not prove satisfactory in every way, return them by mail within 90 days after receipt, and we will refund your money. PRICES: Each, by mail, postpaid, with full directions, 20c; per dozen, $2.25. Send for circular and testimonials. Supply-dealers, send for wholesale prices. 10tfdb **R. & E. C. PORTER, Lewistown, Ill.**

Mention Gleanings.

GLEANINGS IN BEE CULTURE
A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS.
ILLUSTRATED SEMI-MONTHLY
PUBLISHED BY A. I. ROOT.
$1.00 PER YEAR. MEDINA OHIO

Vol. XX. DEC. 15, 1892. No. 24.

STRAY STRAWS

FROM DR. C. C. MILLER.

MERRY CHRISTMAS!

350 MILLION people talk Chinese: 105, English: 100. Hindoo; 80, Russian; 45, German; 38, French.

A CORRESPONDENT asks what insurance companies insure bees against fire, etc. I don't know. Who does?

THE *Review* has been gathering statistics as to the queen-trade, and estimates not less than 20,000 queens sold in 1892.

GOLDEN CARNIOLANS are mentioned in *Imkers Rundschau*, with the word "humbug" occupying a very near position.

BRITISH BEE-KEEPERS are to have in London a competitive exhibition of the honey intended for the World's Fair, before it starts for this side the water.

FOR DYSENTERY, the *Medical Brief* says one of the best remedies is two or three eggs daily, beaten up lightly with or without sugar. This for people, not for bees.

A SERIES OF ARTICLES by P. Bois, on "The Science of Bee-keeping," is being published in the *B. B. J.*, and R. A. Grimshaw follows with a second series, making fun of the first.

"A NUCLEI" is something spoken of quite too often. There is no such thing, any more than there is "a women." You may have a "nucleus;" but if more than one, then they are "nuclei."

THE WASHINGTON CONVENTION is now set for Dec. 27-29; but as yet no light is given upon the one thing that some of us want light upon, so as to know whether we can afford to attend—the railroad fare.

R. MCKNIGHT was supposed to need *watching* by the Ontario Bee-keepers' Association, so they *watched* him with a valuable gold watch, "in appreciation of efficient services rendered to the association."

"SLUMGUM" is a word that I have seen used a number of times. Will you kindly tell us, Mr. Editor, what it means, and, if possible, its derivation? Is it a word that ought to go into use as a straight English word?

PROF. COOK says, *A. B. J.*, "I do not believe mating bees in confinement can ever be made a success." How can you say that, professor, in the face of successes reported? But somehow those successes were never capable of repetition.

DO YOU KNOW of any bee-keepers' terms not to be found in the dictionaries, or any that need different definition? If you will send them to me I will try to see that they are all straight in the great "Standard" dictionary soon to be issued.

CARRIE B. AARON relates, in *A. B. J.*, that she intends to keep a colony continuously at work throughout the coming winter in a heated glass balcony. Her experiments will be watched by bee-keepers with more interest than hopefulness.

A STRIKING CASE of the cure of facial neuralgia is reported by P. C. Gress, M. D., in *A. B. J.* It was effected by a single sting in the eye, and the doctor thinks if six or eight stings had been used the patient would have been killed instead of cured.

"DOES IT PAY to paint hives?" is asked in *A. B. J.* Nearly all say, "Yes;" but Messrs. Doolittle, Secor, and Cook agree with me that it is a matter of looks rather than economy. I suspect, however, that it may be economy to paint flat covers.

ENLARGING THE FIELD of the Bee-keepers' Union so as to make it include prosecutions for adulteration, if it will swell its ranks to 2000, as GLEANINGS thinks, would be a grand move in the right direction; and I shouldn't wonder if GLEANINGS is right.

A COMMON ERROR is to suppose that, in setting a weak colony in place of a strong one in order to strengthen it, it is important that the change be made when the largest number of bees are out. There will be just as much gain if the change is made at midnight.

LAYING WORKERS, Mrs. Atchley says in *A. B. J.*, sometimes commence work just about the time the queen is hatched, or a little before, then stop after the queen gets fairly down to business. On this account she thinks breeders are sometimes fooled, and send out virgin for laying queens.

ONE OF THE FRENCH bee-journals does not sacrifice clearness of meaning for brevity in selecting a name. Its name is *La Culture Rationelle des Abeilles*, or "The Rational Culture of Bees." If the full name must be given with every quotation from it, it doesn't need a copyright to prevent many extracts.

WHAT AILS the proof-reader of GLEANINGS? In last "Straws" he puts John for Jas.; and by changing the place of quotation-marks he makes me father the idea that a metal hive would be moth-proof—an idea whose credit I should not like to steal from Mr. Wykoff. Better turn off that proof-reader and get a Prohibitionist. Or were the mistakes all mine?

THAT USUALLY CHEERFUL writer, E. E. Hasty, is very blue in the *C. B. J.*, over the advance of civilization. Clean tillage leaves no fencerows for bee-plants, and the lindens are disappearing. Hurry up that short-corollaed red clover, friend Hasty, and we'll teach stock to eat melilot; and then with buckwheat and white clover we're not so desperately bad off.

"After more than 25 years' experience," says that usually careful writer, C. H. Dibbern, "we know of no other industry that offers so many opportunities to a poor man as bee-keeping to get a start in life." Some of those who are asking what other business they can unite with bee-keeping so as not to be obliged to give it up, will scratch their heads when they read that.

A neat experiment is reported by F. H. Richardson, in *A. B. J.* Into four cages, each containing a drop of honey, were turned respectively one, two, three, and four bees with empty sacs. "All quickly found their drop and began business. The two bees diminished their drop very considerably; the three cleaned theirs up very nearly; the four cleaned up and 'licked the paper;' while the one lonesome bee undoubtedly wished it had two more sacs. Now, this proved that one drop was just about three bee-loads."

LANGSTROTH'S REMINISCENCES.

EARLY PASTORAL EXPERIENCES.

The Rev. Samuel Phillips, the first pastor of the South Andover Church, served his people about sixty years. He was a man of very marked peculiarities. It is related of him, that, if any head of a family was absent from church, and he knew no cause for it, his practice was to call upon such as soon as he could, to inquire why he was absent. Perhaps this habit of his had something to do with producing that unusual punctuality in attending divine services which I think I never saw equaled anywhere else. The church records kept by him were written in a hand nearly as legible as print. In looking over his lists of baptized children I found, with scarcely an exception, that every child had a Scripture name. From one of the old men I had the following characteristic anecdote:

One morning a father presented his infant daughter for baptism. Being asked her name he replied, "Betsy."

"Betsy!" said Dr. Phillips—"Betsy! that is no Christian name; it is a heathenish name. I suppose you mean Elizabeth."

"No, sir," responded the man; "I mean Betsy."

Proceeding to administer the rite of baptism, Dr. Phillips said, in a loud voice, and with a strong emphasis on every syllable of the name, "E-liz-a-beth, I baptize thee," etc.

The father was so angry that he went stamping down the aisle with his child in his arms, crying out repeatedly in a loud voice, "This child's name, I say, is Betsy! this child's name is Betsy!"

In Dr. Phillips' time no fires were ever kindled in the church. From a large old-fashioned fireplace, in a dwellinghouse near by, the live coals were procured for the women's footstoves. No doubt, when the mercury outside was far below zero it must often have sunk inside to a very low temperature. The men could then keep their feet from freezing only by frequently stamping upon the floor; and I have been told that the noise was occasionally so great that it was next to impossible to hear the words of the preacher.

At the time of my settlement the congregation was composed very largely of farmers. There was one member of the church who came more than once to the minister to complain of the pride of his brethren and sisters. To him the strongest proof of their unchristian pride seemed to be the painted outside of their houses and the carpeted inside. One day when he came with his usual complaints I said to him, "Let me tell you a story. In ancient times there lived a philosopher by the name of Plato, who kept a large school for the instruction of the Athenian youths, and he had carpeted the floors of his academy. Now, there was an old man among his acquaintances, named Diogenes, who lived on the plainest food and in the meanest way. One day when Plato was instructing his classes, Diogenes entered with his feet all dripping with mud. Striding over the floor with great demonstrativeness, and splashing the mud as he goes upon Plato's elegant rugs, while the pupils looked on with astonishment, he cried out with a loud voice, 'Thus I trample on the pride of Plato!' The philosopher looked up, and, smiling upon him, only replied, 'But you do so with greater pride.' Then, appealing to my complaining brother, I asked him if he had never thought that perhaps he was prouder of his unpainted house and its naked floors than others were of the things which offended him so much. Perhaps for the first time he felt that he had made a mistake in being so censorious, and he actually acknowledged to his young minister that it might even be that he had as much or more pride than he had laid to the charge of others.

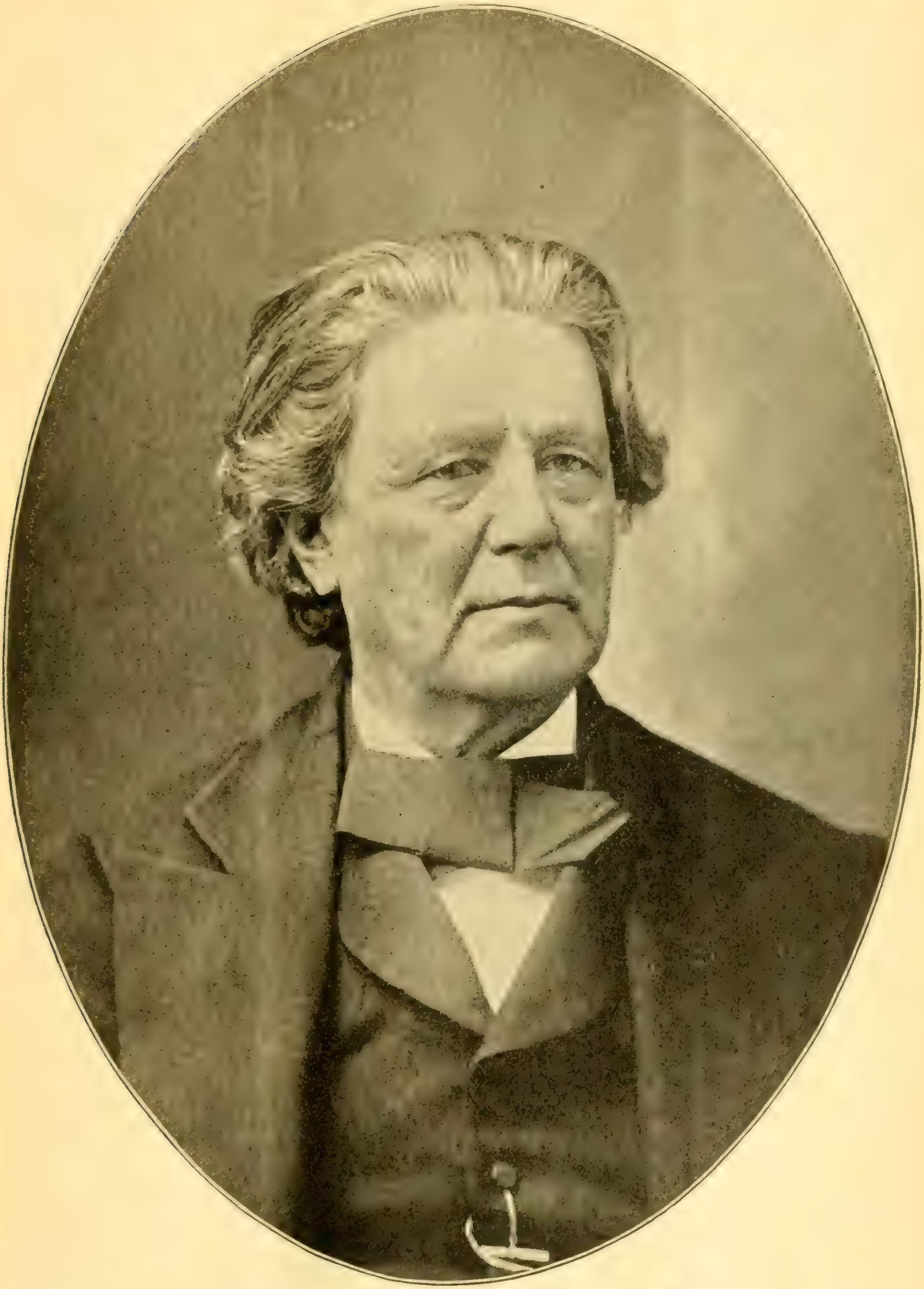
Ministers are often annoyed, especially when young, by church-members who gather up all the current scandals, seeming to think it their special duty to empty them upon him. One such person often obtruded himself upon me, in spite of my decided manifestation of unwillingness to listen to him. I at last induced him to discontinue his visits, by the following treatment: As soon as he opened his budget of evil things said and done by church-members, I turned from him and gazed intently on a corner of the ceiling, and he could get neither word nor look from me. Taking at last the hint I intended, he left me, and never came back upon similar business.

My father had two paper-mills in the vicinity of Philadelphia, which required him to keep team horses and horses for travel; so I early learned to manage a horse. But I certainly knew very little about the practical details of life. One day a carpenter was making some repairs upon my barn; and from some questions that I asked him he found out that I did not even know how to drive a nail. I knew very well that I was quite an adept in splitting boards, and first learned from him that a nail is a wedge, and how to drive it. Never having had any experience in ministerial matters, so that I could learn how a parish should be treated, I doubtless made many mistakes.

I have often thought what an admirable discipline it was for a young man, studying for the ministry, to be in the family under the eye and instruction of some able pastor who could impart to him not only theological knowledge, but that practical, common-sense way of dealing with parishioners for want of which so many pastors fail. They now go to a theological seminary and hear lectures, and learn theoretically their future duties; but often they enter upon them lamentably ignorant of what they might so easily have learned in a pastor's family.

THE SLAVERY QUESTION.

In the senior year of my college life the question of slavery became very prominent. Presi-



Yours affectionately,
L. L. Langstroth

dent Day always strongly desired its abolition, but he did not agree with many of the methods pursued by our prominent anti-slavery men. In his judgment, even the formation of anti-slavery societies in the North was a mistake. He thought their natural tendency was to irritate Southern men, and turn them away from making any practical efforts to change their institutions. I once heard him say, "If a door is partly open, and you for some reason wish to have it opened wider, it would not be wise to use such irritating language as could only end in having the door slammed in your face." I heard Wm. Lloyd Garrison lecture in a church at New Haven. Many Southern students were present, and great offense was given them by the opprobrious epithets which he so vehemently bestowed upon all slaveholders. I could easily see that their sense of justice was often violated, and that they could not fail to be provoked, by his strong denunciations of their Christian fathers and mothers. I suppose it would, at that time, have been an inconceivable idea to Mr. Garrison that "men-stealers," as he called all slaveholders, could possibly be real Christians. The cries, "It is a lie! you are a liar!" were hurled at him by those who truly believed that he deserved such epithets, and the meeting broke up, I believe, in confusion. Some years later I read, in a Portland paper, an angry controversy carried on between John Neale and Mr. Garrison, long before the latter became prominent as an anti-slavery agitator. One sentence dwelt long in my memory, and inspired a strong dislike to Garrison. The purport of it was, that Neale might live to be proud some day of the connection of his name with that of Garrison; "For" (I quote from memory) "it is my determination to make the name of William Lloyd Garrison known wherever the sun doth rise and set." To "make the name of William Lloyd Garrison known" seemed to me, for a long time, to be too much his leading motive. If it was, he lived to rise nobly above it in his subsequent career. It may well be doubted, whether the steps which led to the overthrow of slavery could ever have been taken by men who did not possess the Lutherlike spirit of Garrison and his associates. But what if he had possessed a stronger spirit of love? or if he had been, as it were, a Luther-Melancthon embodied in one soul? But God raised up a Luther and a Melancthon, but no Luther-Melancthon.

In the Andover church, as in so many others, there were wide and irreconcilable differences of opinion as to what ought to be done by church action on the slavery question. One of my own church-members came to converse with me one day, on this (to him) all-engrossing theme. We differed widely: he grew more and more excited as his voice rose higher and higher in fierce remonstrances. In a lull of the storm, a tapping was heard at my study door; and when I opened it my wife stood there with tokens of surprise if not alarm on her countenance. My angry parishioner subsided at once, and, taking her by the hand, he said, with a pleasant smile, "Did you think that I was abusing your good husband? I know I lost my temper, for which I apologize to you both; but let me assure you that, however much we differ on the question of slavery, I believe that we honestly differ, and I think that there is no man in the parish who loves your husband better than I do, or would go further to serve him."

It is by no means certain, that, if Garrison and his co-agitators had been able to obey more fully the Savior's injunction, to be "wise as serpents and harmless as doves," they ever could have brought about a peaceable solution of the slavery question. Before the war, how many wise and good men sought to prevent the sword from being drawn; and during the bloody struggle, how many cried out, in the words of the prophet, "O thou sword of the Lord, how long will it be ere thou be quiet? put up thyself into thy scabbard; rest, and be still," to be answered only by the words of the same prophet, "How can it be quiet, seeing the Lord hath given it a charge, and he hath appointed it?" Perhaps this very passage suggested to Lincoln what he said about the blood shed by the lash, and that to be shed by the sword.

In the autumn of 1856 I heard Theodore Parker preach a thanksgiving sermon in Boston, from the text, "The harvest is past, the summer is ended, and we are not saved." He gave it as his opinion, that the last opportunity for the peaceable settlement of the slavery question, in this country, had passed by unimproved; and then he uttered those prophetic words, "*Slavery shall perish, but her sun shall go down in a sea of blood!*" It is easy for us now to see how much better than most preachers or statesmen he read the signs of the times.

Dayton, O. L. L. Langstroth.

Continued.

MANUM INTRODUCING VIRGIN QUEENS.

PRACTICAL SUGGESTIONS FROM A. E. MANUM; THE VALUE OF HATCHING BROOD.

I was talking to the bees, and said:

"There, take *that*, and we will see if you will accept this queen."

"Hello, Manum! what are you trying to do with those bees all shaken out in front of the hive?" asked Mr. Charles McGee, as he made a call on his return home from his own apiary, which is located eight miles distant.

"Well, Charles, you have caught me this time, sure. I have always claimed that my method of introducing virgin queens was successful; and while it is, as a rule, yet I find an occasional colony that gives me more or less trouble; and while, formerly, not over two per cent of my virgin queens have failed to be accepted, this year I think all of five per cent have missed, and the second queen has been given, while this colony have killed the second one, and I have just given them the third one."

"What do you attribute the failure to?"

"Well, Charles, to my mind there are two causes. One is, the lack (or dearth) of honey in this locality. The bees being idle, they are more sensitive and irritable, and hence more particular, perhaps, about accepting queens; and then, again, owing to the press of work, I have given some of my colonies queens too soon after removing their old one; and in many cases I have been obliged to give them queens that had been hatched several days, and that had remained in the nursery cages that were in colonies which had laying queens; and having neglected to feed these colonies regularly, and as bountifully as I ought, the colony became enraged at having hatched queens within their hives. They tried to kill them, but could not, as these virgins were safe within the nursery-cages. In many instances, when I would go to these nursery colonies for a queen I would find the cages balled by enraged bees, and, of course, the queens within became excited, and more or less scented with the poison emitted from the enraged bees. Therefore this condition of things I believe to have been one cause of the non-acceptance of so many queens. I tell you, Charles, there are many little things which we are liable to overlook or neglect, which are the real cause of some of our failures; we should, therefore, be watchful of little things."

"Do you think this colony will now accept this third queen?"

"Yes, I do, because I have prepared them expressly for her. In the first place, as soon as I found they had killed the second one, I gave them hatching brood. I was careful not to give them a single cell containing eggs or larvæ—*not one*. At the end of four days from the time of giving them the hatching brood, they were in the same condition that they were fifteen days from the time their old queen was removed, and hence in the right condition to accept a virgin. But, in order to make a sure thing of it, I shook the bees off the combs in front of the hive, as you see, and, after re-arranging the combs in the hive, I placed a *young* virgin queen, not over three hours old, on the top-bars, and let her run down among the young bees that adhered to the combs; and as I have taken the *further* precaution to sprinkle the bees with sweetened water, that they may be well filled on entering the hive, I feel quite sure the queen will be unmolested."

"Have you other queens to introduce tonight?"

"Yes, but not in this way. There is a colony on the next row that have a laying worker, as I discovered this morning; but I could not stop then to fix them up, as I had urgent work to do in another apiary. If you will wait I will show you how I do it. First, I will go to the nursery-hive and get a queen. I want a very young queen for this purpose. There—there is one just hatching in this corner cage. I will take her. I will put the cage she is now in in my pocket, to keep her warm. Here is the hive with the laying worker. I will first remove all this drone brood and every queen-cell they may have started, and give them this comb of hatching brood. You will see that I have destroyed and removed every larva and egg; now I will place the queen on the comb right among these hatched and hatching bees; and now I place the comb in the center of the brood-chamber. Now I will put in these three empty combs to take the place of those that contained drone brood started from the eggs laid by the laying worker, and now the work is done."

"Well, Manum, you have cleared up some things which puzzled me. You know I am running one of my apiaries after your method of removing queens, and I like it very much—much better than I thought I would. But some of my virgin queens have been rejected, and I was at a loss to know how to account for it; but I think now all is clear. I had thought of giving my queenless colonies queen-cells, and I called to-night to ask you about it. If they will accept a queen-cell, that will save all trouble of fussing with queens. I saw in the *Review* a few days ago, that one man in Colorado gives his bees cells instead of hatched queens. What do you think of it?"

"Don't you do it, Charles—at least, not as a rule. I have done so occasionally, at some out-apiary, when only two or three colonies needed queens, and I had none for them; and to save an extra journey I have given such colonies queen-cells; but usually I have had trouble with these colonies, in one way or another. If the cell given them contains a *good* queen, which is not always the case, and she is accepted, which is also 'not always the case,' they are *liable* to swarm out with her—more so than if a hatched queen is given them—at least, that has been my experience. I therefore prefer giving a hatched queen, because, in addition to the reasons I have already given you, I can select my queens before introducing, and use none but the best; whereas, by the cell method one has to 'go it blind' to a certain extent."

"When introducing virgins at what you call the proper time, viz., 15 days after removing the old queen, do you find there is any choice as to how the queen is given to a colony?"

"Yes, Charles, I do. I have tried various ways, such as running them in at the entrance just at night, at midday, and in the morning; by removing one of the combs and placing her on it among the bees and then returning the combs; by placing her on the top-bars, and, again, by letting her in through a hole in the honey-board by shaking a portion of the bees from the combs in front of the hive and dropping the queen among them. But I have succeeded best by the simple way of letting her run in from the top of the sections. I simply raise one corner of the enameled cloth just enough to expose one of the openings between sections and lay the nursery cage, containing the queen, over this opening, with wire-cloth side down; then draw the slide and wait a moment for the queen to run down into the sections, and the work is done. No matter how many tiers of sections may be on—the more the better. While I have succeeded with all the various ways I have mentioned, I prefer running them in through the sections; and why? Because by this method the bees in the hive are undisturbed, the operation being performed so quickly and quietly; and the bees find themselves at once in possession of a queen, without knowing whence she came; and, having entered from the 'attic,' she is first introduced to loaded bees just from the field, or quite young bees, both of which are indisposed to quarrel; and in making her way down through the sections she takes on the scent of the colony, which gives her an unquestionable passport, and all is safe.

"When you call again, Charles, I will tell you something of my new method of management, where bees are allowed to swarm without giving an increase in colonies."

Bristol, Vt., Dec. 3. A. E. MANUM.

[We are always glad to get articles from Manum, because they "smack" so strongly of practical, every-day experience. It is indeed true, that, in order to have success, there should not be any eggs or unsealed larvæ—nothing that will give them any hope of rearing a queen themselves They are then in good condition, realizing their helplessness, to accept a virgin; and a lot of young bees in the hive goes a long way to establish peace. Hatching brood is always good capital. Mr. Manum's idea of having a queen pass down through the sections among young bees and loaded field bees is excellent.]

SUGAR-FED HONEY.

JUST A WORD OF EXPLANATION, AND NO MORE DISCUSSION IS CARED FOR AT PRESENT.

Editor Gleanings:—I thank you most sincerely for allowing me to clearly define my position on the sugar-honey question, but I have had my "say" so fully that I have nothing further to offer. Like yourself, I think nothing will be gained by continuing the discussion at present. There may be an article or two more in the December *Review*, and possibly a slight editorial reference to the matter, then the subject will be dropped for other important topics that are pressing for recognition.

If you will allow me, I should like to explain in regard to the one or two points touched upon by "A. I. R." on page 897. The first point, that, if sugar fed to bees becomes honey, then there is an absurdity in adding *real* (floral) honey to prevent crystallization, is answered by "A. I.

R." when he admits that some floral honey granulates in the combs. I doubt whether the addition of *fireweed* honey would prevent the granulation of sugar fed to bees, if there was any inclination on the part of the sugar to granulation. In fact, I think that the addition of the honey would aid the matter. A. I. R.'s experience is different from mine when he says that almost all sugar fed to bees will eventually granulate. I have fed a great deal of sugar for winter stores, without the addition of any thing to prevent granulation, and granulation has occurred so seldom that it does not seem worth mentioning. There is a difference in sugar as regards this matter of granulation, just as there is in natural honey. Most sugar when fed to bees does not crystallize; most nectar when gathered by bees does not granulate; some kinds of either will granulate, hence I see no argument in this point.

If Bro. Root will read carefully Prof. Cook's article in the October *Review*, also the extract taken from the *College Speculum*, he will see that the students did not pronounce the sugar honey "basswood." They "pronounced it undoubtedly honey, and of excellent quality." It was the chemical analysis and not the taste that classed the sugar honey with that of the finest clover and basswood.

Thanking you again for your generosity and fairness in allowing me the use of your columns to make my position clearly understood, I am as ever yours, W. Z. Hutchinson.

Flint, Mich., Dec. 5.

[We are yet to hear from Prof. Cook, at which time we expect to copy his *Review* article.]

REPRODUCTION IN THE BEE.

SOME THINGS NOT YET EXPLAINED.

The patient efforts spent by our ancestors upon our inherited knowledge are almost always overlooked, underestimated, or ridiculed. In the light of our present knowledge, crystallized from concentrated study of ages, the mistakes made by the ancient naturalists and students floundering about in complete darkness seem to be or are too often treated as inexcusable. Of no subject is this more true than of the reproduction of the honey-bee. A little thought, however, and a brief comparison with the reproductive systems of the better known and more approachable animate beings will suggest a reason for much of the seemingly wild guesswork with which the habits of this little worker were distorted. So complete a departure—reversal, almost—of the more observable laws of nature was well calculated to foster erroneous ideas.

In a general way, we now understand the functions of the three branches of the bee-family—the drones, queen, and workers. But who would expect to encounter, in a herd of several thousand wild cattle, a single cow, a few bulls, and the vast body of the herd sexless, or practically so? No wonder Shakspeare penned of them, "They have a king and officers of state;" and when we come to the remark of the ancient naturalist Aristotle, that "some say the rulers produce the young of the bee," we should rather be surprised that they had learned so much about them as they had. Nor were all the great mistakes on this subject made in the earliest times. Virgil, about the time of Christ, makes the assertion that a custom, said to have once existed in Egypt, to replenish weak swarms, was to suffocate a young bullock, cover the carcass with flowers, the worms appearing in the decomposing flesh, and hatching into bees, being utilized to strengthen the depleted colonies. Virgil, however, states this only as a historical fact, leaving it for Englishmen of a later century to gravely repeat it as a practical truth.

In 1617 an English physician, Joseph Warden, in a volume entitled "The Feminine Kingdom; or, the True Amazons," gave many hitherto unkown facts about the bee, among which was the assertion that the queen was at the same time ruler and mother of the colony. An English bee-keeper by the name of Butler is also said to have understood this at even an earlier date.

A little further back I said we all now understand the methods of reproduction in a general way. Let me now add, *and in a general way only*. With all our boasted nineteenth-century knowledge there are a good many things in this subject quite undetermined. In the hope of adding something to the knowledge of some one, this article is written. Let us now consider the uses of each member of the hive, and inquire into the reproduction and development of each, beginning with the queen.

Everybody, perhaps, knows that the queen-cell is larger than the worker-cells, and opens downward. Into this an egg is placed; just how is still disputed. Some claim to have seen the queen deposit it there herself, while others are as certain it is carried there by workers. If all things are favorable, the larva becomes a queen in 16 days. Previous to this, by about 8 days, the old queen leads a portion of the swarm away to other quarters, giving her young successor undisputed sway from the first. This, however, is in case the weather and conditions are favorable. If the young queen hatches before the colony is ready for her, the workers confine her in her cell, and care for her there until the conditions are more favorable.

On being released, her first act is to make a tour of the hive and destroy every embryo queen that, if allowed to hatch, would in time become her rival. If this destruction is interrupted by the workers, or incomplete for any reason, a second swarm is usually the result. This destruction is rendered the easier by the victim of it, who leaves one end of the cocoon open, and thus exposes herself to just such an attack. The queen-bee seldom makes any use of her sting except to destroy rival queens.

If the weather is bad, and the honey-flow ceases, the workers not infrequently destroy all queen-cells and thus stop all swarming for the season—a method the keeper himself sometimes resorts to for the same purpose.

Perhaps the most curious fact connected with the bee colony, and the one that has been the least explained, is the action of the swarm when a queen is lost. If the colony is healthy, and there is brood in the hive not over three days old, worker larvæ are removed to queen-cells, where they are fed on the "royal jelly," and in the course of time become full-fledged queens. That the extra nourishing and stimulating food should increase the size of the bee receiving it, and perhaps reduce the time required for hatching, just as plants are hurried along by the forcing process, is not so very remarkable. But that the larva, which, by the regular course of nature, would develop in 21 days to a sexless member of the family, of short life, small size, gingery disposition, and, withal, a strong veneration for a queen, could, by the magic influence of more commodious quarters and better food, become in five days less time a much larger member, with a fully developed sexual organization, a strong dislike to attack any except another queen, for which their hatred is deadly, a greatly prolonged life, and the physical and character peculiarities almost entirely opposite, is certainly surprising, and, in our present incomplete knowledge on the subject, wholly unaccountable. After all, the ancients were not entirely alone in their ignorance. The fact itself was first announced in 1771 by a Saxon clergyman; but the explanation we are yet to announce. With characteristic thrift we have, however, promptly adapted the discovery to our commercial instincts, and queen-raising is neither an unprofitable nor a superfluous industry.

Unlike the worker, going and coming constantly, the queen, all things being right within, seldom if ever leaves the hive except on her "bridal tour," or when preparing to lead a swarm to pastures new. The first-mentioned outing she takes, if the weather is favorable, the third day after hatching. If unsuccessful she repeats the trip until fertilized. This must be within 21 days or she will be barren. The danger to the entire colony, attendant upon the flight and exposure of the queen, is lessened by the considerable number of drones, or males; a number, in fact, that many are inclined to wonder at, considering that there is but one female, and she requires to be fertilized but once in a lifetime. This always takes place out of doors and while on the wing.

Sterility does not prevent the laying of eggs. Indeed, when the queen has been lost, a worker has been known to produce eggs. But these, as well as those of the unfertilized queen, invariably produce drones. Thus the one great known law governing reproduction in all its branches is established. Fertilized eggs will produce workers or queens as they are reared in a worker or queen cell, while unfertilized eggs invariably produce drones.

WILDER GRAHAME.

ANOTHER BEE-ESCAPE.

SOLAR WAX-EXTRACTOR IN CALIFORNIA; ITS USES AND ABUSES.

Friend Root:—I send you with this letter a model of my bee-escape. It was invented two seasons ago. After a number of successful trials I was on the point of telling about it through GLEANINGS, when I found a case in which it did not work, even after the escape had been on several days, so gave it up; but as I see Dr. Miller reports (page 795) a like experience; and I presume, with some of the improved bee-escapes, I am emboldened to send on mine. I have tried it along with some made on the plan of the Reese cone escape, and I have seen the Dibbern star escape used. This does better work than either of those. In fact, in most cases, after a few hours, the super is practically free from bees. Whenever I have used it I have placed a super, filled with empty combs, beneath the one which I wished to remove, having the escape, of course, between the two supers. It may not do so well if this extra super is not used.

If you will examine the model you will see that the large holes through the tin, by which the bees are to make their exit, have been punched from the upper side. This makes a rough rim around the hole on the under side, and over which the bees will have to climb in order to pass from the brood-chamber to the super. This they do not like to do, but will try to pass through the small holes, whose under surface is smooth, and which are intentionally made a little too small for that purpose. The cleats around the escape on the upper side are to make the bee space beneath the super frames, and on which the super is to rest.

Several strips of tin, instead of one, as in the model, may be used. This permits of a great many passageways and the rapid emptying of the super. You will also see that the bees in the super have a passage to the outside, which, I believe, is a favorite way with our British cousins. I find a great many leave the super by this route. Noticing the unusual light, they go to investigate, fly outside, and invariably return to the hive by the entrance in the brood-chamber.

GETTING THE WAX FROM THE SLUMGUM.

I have been kept indoors to-day by our first rain this season—a glorious one—five inches having fallen in twenty-four hours, or about half as much as has fallen in the preceding nineteen months. Besides the building of the bee-escape which I send you, I have built a great many castles in the air, relative to the big honey crop I am going to make next year, enthused thereto by this glorious downpour. I have also put in some time between whiles, melting wax. The wax rendered was mostly new comb and scraps of foundation, with perhaps a dozen old combs. In rendering it I tried

MRS. AXTELL'S PLAN.

This was spoken of in a recent article by her in GLEANINGS. It consists in boiling and straining twice the cocoons and other refuse left after melting old comb. The result rather surprised me, as, from the second boiling and straining of perhaps a gallon measure full of slumgum, I pressed out a full pound of wax.

When I can get at old combs on a frosty morning, and crush them to powder, then soak 24 hours before rendering, I always feel satisfied that I have got all the wax from those combs. I believe this method frees the wax from the cocoons as entirely as does rendering them with acid. In fact, I was rather disappointed on rendering some combs with sulphuric acid. From what I had read I inferred that the cocoons were entirely disintegrated—eaten up—by the acid; but after rendering some old combs by that method I could not see but that the cocoons looked the same, and were as capable of absorbing wax as when rendered without acid.

Sun extractors can be profitably used, only with new comb. When old brood-combs are rendered that way, the cocoons absorb a large part of the wax. Some of our bee-men have a practice of going through their hives every few years, and cutting out all black combs, replacing them with foundation; and although the sun extractor is considered among the necessary appurtenances at an apiary here, so unprofitable has the melting of these old combs in them been found that I have known persons to use such combs as an auxiliary to the woodpile. Our neighbor, after culling out old combs from an apiary of 300 colonies, had a pile of them which loomed up like a small mountain. He cogitated for two years what to do with these combs. He was positive that it did not pay to melt them in the sun extractor. One day he touched fire to the pile, and a good many dollars' worth of wax went up in flames. Of course, it would have been better to melt them in his sun extractor than to do this, although burning them was on a par with the idea which instigated the cutting of the combs from the hives in the first place.

If the apiarists who play such tricks would read the bee-papers and text-books they would know that old combs have as much wax in them as new ones, it only being more difficult to get out, and on this subject they would get many pointers, as instanced by myself from the perusal of Mrs. Axtell's article. I will add, that the style of solar wax-extractors in general use here are capable of being much improved. Of all extractors of this kind which I have seen, I like best one with a curving bottom, like the Doolittle, illustrated in your catalogue, as in it it is convenient to get at the slumgum with a paddle, and press the wax therefrom.

Newhall, Cal., Nov. 27. W. G. Hewes.

[When Mr. Hewes' model first came to hand we made fun of it, not knowing from whom it came; but after discovering its source, and having confidence in our correspondent, we thought differently of it. It would be difficult to show the real principle of it by an engraving, and we would therefore explain that a strip of tin is mounted in an ordinary honey-board. Through the tin are punched holes just large enough to let the bees through one way. As they are punched with a large awl a ragged burr edge is left tapering to an opening large enough to admit a bee from the side in which the awl pierced, but not from the reverse side. The only difficulty that occurs to us is, it would be impracticable to get the same excluding burr edge every time.]

RAMBLE NO. 74.

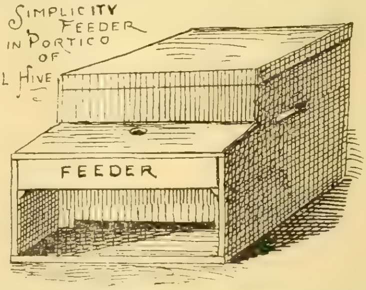
RAMBLER AT WHEELER & HUNT'S.

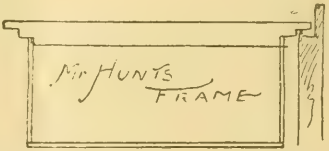
"Founded in 1887. Headquarters of the Bear Valley Irrigation Co., having water for the irrigation of half a million acres. The largest irrigation enterprise in America. Products—Oranges, lemons, peaches, apricots, raisins, and honey."

Thus runs the legend in relation to the young and thriving town of Redlands, located in the upper end of the San Bernardino Valley, with the lofty San Bernardino Mountains for a background. It is no wonder that people look upon the location as another Switzerland. From some of the heights in the suburbs of the town, grand views of the valley and its orchards can be obtained. Redlands, as I have before stated, is the headquarters of the honey-producing firm of Wheeler & Hunt. Back a little from the city, and in the foothills, are located the Mound City, Brookside, San Mateo, and the Yucaipe apiaries; fourteen miles to the west, near Riverside, is the Jurupa apiary; and sixty miles away, in San Diego Co., is the Fall Brook apiary, which was purchased, I believe, from Mr. Harbison. The rest are in Langstroth and a modified form of the Langstroth and Simplicity hive. Mr. Wheeler, the senior member of the firm, has attended somewhat to the supply business, and has never been an active worker in the apiary. His son Frank, however, has every year taken charge of an apiary, and is an expert manager of bees. During the past year Mr. Wheeler has been interested in the development of the Rose gold-mine, in the San Bernardino Mountains, and in which he is one of the largest stock-holders. The mine has recently struck a great amount of ore well loaded with gold, and Mr. W. finds that this source for raising the golden shekels is more rapid than getting them through a bee-hive.

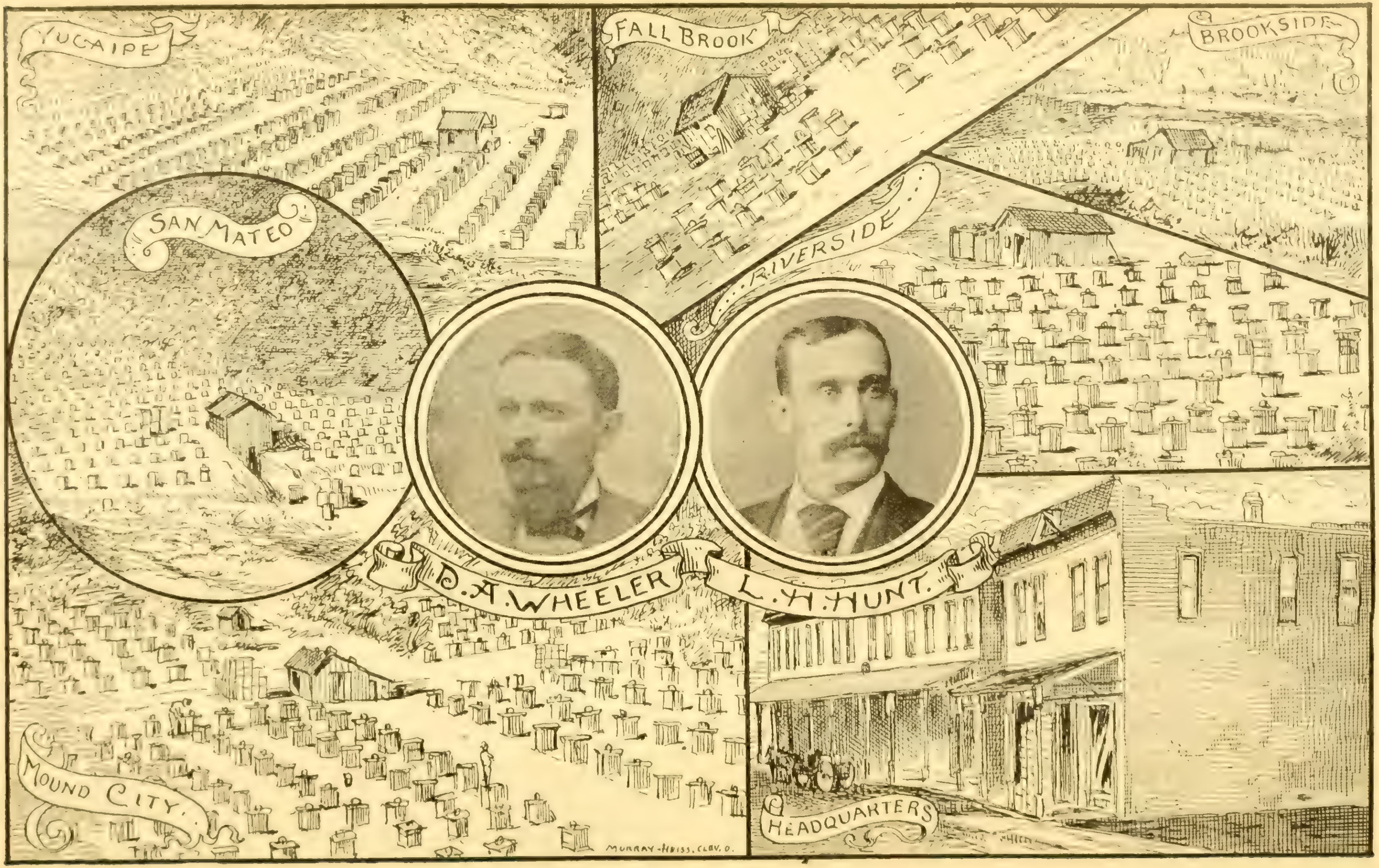
In relation to bees and honey, Mr. Hunt has been the active field-manager of the firm. Mr. Hunt formerly lived in Iowa, and, besides owning bees, he was an extensive dealer in honey, selling it in all large towns in Iowa, Illinois, Kansas, and Missouri. The older readers of the *American Bee Journal* may remember a little controversy between Mr. Hunt and Mr. Van Dorn, of Missouri. The latter accused Mr. Hunt of selling glucosed honey. Mr. H. called for an analysis of his honey, and the result was a complete exoneration from the charge. Mr. H., however, says that dealers did adulterate honey, and invariably used the darker grades for that purpose.

About six years ago Mr. Hunt threw up his honey-trade, and came to California to engage exclusively in its production. His first venture with bees was very successful; 135 colonies were rented; increased to 200, and yielded 307 lbs. to the colony. The next year he purchased bees; and from about 400 stocks, which he valued at $800, he realized $3500 from the sale of honey. With this grand result there came a desire to own all the bees in California. No, perhaps not quite so much as that. We will say a large number. Enlisting the interest of Mr. Wheeler, a large number of colonies were purchased, and the business entered into on a larger scale. Heretofore Mr. H. had worked his apiaries for extracted honey; but now a change was made, and a portion of the apiaries were worked for comb honey. The past three seasons have not, however, been remarkable for heavy yields, and especially for comb honey, and Mr. H. expresses many sighs of regret that he ever changed at all from the extracted plan. The out-apiaries have been worked during the honey-season with hired help, and the helpers, many times, have been more of a damage than a blessing. An inexperienced man is liable to extract too close, and then feeding must be resorted to in the winter, which, even in this climate, is not a pleasant job. The prices paid, and the kind of help wanted, have been explained in the previous Ramble. In two of the apiaries, Brookside and San Mateo, there is something of a mixture of Cyprian blood, and it is of that kind that Mr. Mendelson told us of that will sting a stovepipe until it is expected to squeal. A helper in one of these apiaries employed his spare hours in picking bee-stings from his clothing and various portions of his body, and thus obtained a box full. These apiaries will be worked another year by Messrs. Powell and Zanft, and we wish them a comfortable time. Mr. Hunt is a rapid worker with bees, and his methods were admirably touched up in the *American Bee Journal* about a year ago by Mr. H. Hill, of Pennsylvania, a former employe.


Simplicity Feeder in Portico of L Hive
FEEDER



Mr. Hunt, like all progressive bee-keepers, is continually studying up short cuts and improvements in management. In order to stimulate in the spring by feeding, each L. hive is permanently fitted with a Simplicity feeder, as shown in the sketch. A hole in the end of the hive allows the bees to gain access to the

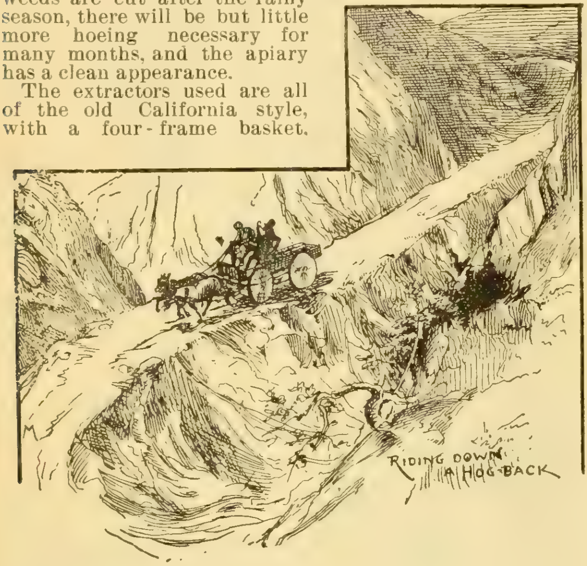

YUCAIPE
FALL BROOK
BROOKSIDE
SAN MATEO
RIVERSIDE
D. A. WHEELER
L. H. HUNT.
MOUND CITY.
HEADQUARTERS
MURRAY-HEISS, CLEV. O.

APIARIES OF WHEELER & HUNT, CALIFORNIA.

feeder, and a hole in the cover to the portico allows the feeder to be filled, and outside bees can not molest.

The apiaries of this firm make a fine appearance, as will be noticed by the photo. There is one convenience in a dry climate: If the few weeds are cut after the rainy season, there will be but little more hoeing necessary for many months, and the apiary has a clean appearance.

The extractors used are all of the old California style, with a four-frame basket, some of which are hung in a large wooden tub. The highest number of colonies owned by these gentlemen has been about 1500. The past three bad seasons have reduced the number to about 1200. If increase is desired, however, a good season would boom the colonies to an astonishing extent. As an experiment, Mr. H. increased 18 colonies to 100. and secured $200 worth of honey; but that was a boom season.

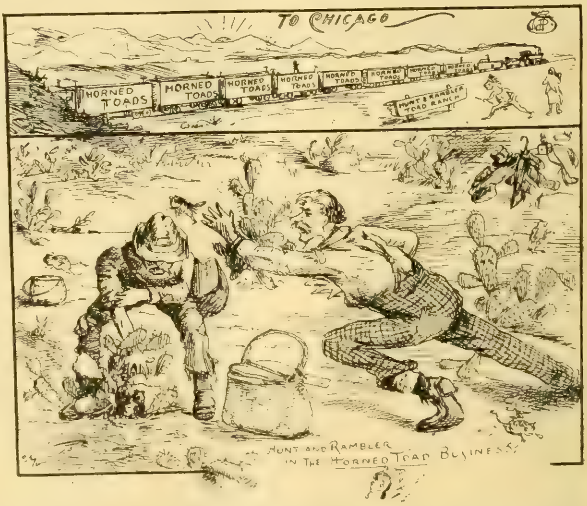


"Headquarters" is a fine brick building, and the entire first floor is filled with hives, supers, and all the paraphernalia of a bee-business. Hives and foundation are made here. In dipping wax sheets, Mr. Hunt uses a gang of four dipping-boards, making 8 sheets at every dip. In the line of putting together sections and putting in foundation, Mrs. Hunt and Arthur, the 12-year-old boy, are very expert.

Bees propolize so much around the ends of the top-bars of brood-frames in this climate that Mr. Hunt makes his hives large enough to give a bee-space around the end of the top-bar; and to insure against the frames moving endwise, another shoulder is cut on the end of the frame, to fit the metal rabbet, and the frame is held secure. Mr. H. would like to try the Hoffman frame here, but would want the top-bars made on the above plan.

As before stated, the apiaries are located back in the foothills. These hills are cut up by many ravines, or gulches—or, as the Spaniards say, *arroyas*. The ridges between are veritable hogbacks, and some of them, upon which a trail leads, are not adapted to safe riding, especially if the horses are subject to shying. Mr. Hunt rattled the Rambler over one of these hogbacks at the imminent peril of his plug hat and umbrella. Mr. Hunt is something of a genius; and, though his mind has never become inflamed with the gold-mine fever, he expects to strike it rich upon something in the mechanical or speculative line. During the honey season the energies have been running at high pressure; and when the slack time comes they must find something to feed upon. At present Mr. H. is working up a grand scheme to supply the world with "Herba Santa" cigarettes. Herba santa, or "blessed herb," grows luxuriantly in this climate; and, besides being a honey shrub, it has ever been known as a medicinal herb of great importance, as the name signifies. The leaf is of the lanceolate order, and is covered with a glutinous substance that gives the leaf a high polish. When eaten they have a highly aromatic taste; the leaves work readily into cigarettes; and, besides their medicinal qualities, Mr. Hunt has made the above discovery; and while the Rambler has about as much faith in the medicinal qualities of the smoke as he had in the divining instrument, still "Herba Santa" cigarettes wrapped in harmless paper would certainly be an improvement over the death-dealing tobacco cigarette; and with this end in view, Mr. Hunt regards the scheme as highly philanthropic. The Herba Santa factory is not started, however, and the scheme is not brewing so strong as it did a few months ago.

I suppose the senior editor, when in California, noticed, in the windows of curiosity stores, great numbers of horned toads, taxidermized and mounted upon cardboard, and looking as natural as life. Mr. Hunt and the Rambler have hunted horned toads; and, as they are easily hunted, captured, and prepared, we have a scheme for putting several carloads on sale at the World's Fair, at 50 cts. each. There is a bonanza greater than a gold-mine in it. Hunting them among the cactus bushes might fray out our pants a little; but consider the bags of



shekels that would come in. Our plans are well defined; and from the sketch you observe that our scheme looks well on paper.

It may be considered by some that bee-keepers should not indulge in the elaboration of such schemes; but that, perhaps, is one disadvantage bee-keeping rests under in this climate. The actiye season is for only a few months, and then there is ample time to indulge in schemes or business, and too often the other things absorb time that should be devoted to the bees.

The great need of bee-keeping in California is, to make it an all-the-year-round business; and to that end we ought to rejoice at the scheme of Messrs. Hutchinson and Cook in relation to sugar feeding to make honey. With our Chino and a dozen other beet-sugar factories, and endless summer, we could flood Michigan knee-deep with that kind of honey. The Rambler will immediately visit the Chino sugar-factory and give you the results of our researches.

Although Messrs. Wheeler & Hunt have so many apiaries around Redlands, there are many others; and we may at some future time describe some of them to you; but for the present, *adios* says the RAMBLER.

[That there are advantages in having top-bars as illustrated, can not be denied. We have thought some of making frames that way, but could not see our way clear to do it, because it would make an expensive change. In moving bees over rough roads there would be danger that the frames would hop out of place, and, of course, one end would drop down and spoil the whole. Taking it all in all, we question very much whether it would be wise to make the change, even if it would not break up the uniform length of all Langstroth top-bars.]

STARVING INDIA.

FURTHER PARTICULARS FROM MR. FRANK VAN ALLEN.

Mr. A. I. Root:—I have received by this day's overland mail from Europe, which reaches us once a week, the $34.80 which yourself and your customers have so kindly sent me. We have indeed had a hard time with threatened and actual famine in South India. In many districts -actual famine has prevailed, relief works by Government being the only means which has prevented the utmost distress. For several months we were stared in the face by the prospects of the fearful famine scenes of 1876 and 1877 being repeated, when upward of 5,000,000 people are estimated to have died from actual starvation, diarrhœa, and famine-fever. The prompt action of the English Government has tided over for us now a critical time, and prospects are much brighter; and, though this is so, times are very hard, and the prices of grains in some cases almost touching famine rates. There are some of our Christians among the natives, who barely get one meal a day. The effects of a serious scarcity last for some time; by this we are cheered, that it is only the remnants of the recent serious scarcity, and that, as we have now had good rains, the crops will soon begin to come into market, and the high prices will be reduced. The state of affairs now in South India is well represented by this: Rice (the staple food) is 5¼ measures for a rupee. The usual price is 8 measures for the rupee. A rupee is about 35 cents, and the wage of the mass of the people is about 6 or 8 rupees a month. A "measure" is a little more than a quart.

My work in India is that of a medical missionary. I have a hospital and dispensary in Madura (pronounced Mád-ju-ra). European medicine is appreciated here in India, due to its intrinsic value and the effect of the influence of the English Government. My dispensary is thronged every morning with those seeking either simply medicine or else surgical relief. Last year I treated (with the help of my two "dresours," or native medically qualified men) a little over 38,000 cases (including new and old ones).

Our dispensary and hospital has an excellent name for miles about, and it is not in the least unusual for patients to come 40 miles in a bullock cart, for treatment; and sometimes they have come more than 100 miles. Of course, the majority of my patients come from Madura and the immediate surrounding villages. Last year, patients came from 246 different villages, near and remote. Such a work, as a well-known medical work, is a Christian light that shines brightly in such a heathen country as India. It is the means of making many friends for Christianity. It has always been the policy of our mission to have medical work that the people may see, as they perhaps might not otherwise, our disinterested motives, and know that we seek only their best good. They get an insight into our motives through our medical work which they otherwise would not in most cases. They know that the door of our dispensary is always open, day and night; that medicines are to be had without money (unless they choose to pay for them; but the great majority do not do so), and that the hand of the missionary doctor is ever ready to help. A good deal of the money for my work comes from America. I get also good local grants, and my wealthy patients often give me most liberally for my hospital. From this source alone I have received this year about one-third of my whole expense for the year. I try to make this country bear as much of the expense as possible, but the great majority of the people are very poor indeed.

Perhaps you would like to look at a few of the cases in my ward. In one bed lies a man who came suffering with what is called "Madura foot." The foot becomes diseased with a peculiar fungus which, by the way, is found only in the Madura district in South India, and here it is, unfortunately, very common; begins to swell, becomes painful; later, disorganizes; and there is but one remedy, and that is, *removal.* This man's leg was amputated just below the knee. He is entirely well now, and goes home to-day (of course on crutches). He asked me for a new "cloth." A "cloth" is the name of a straight strip of cloth, rather less than a yard wide, and a yard or two long, wound about the hips, and falling to the knees. This is the one garment worn here by the poorer classes. As a rule I give only food; and when he asked for the cloth I told him I couldn't do it; but I shall now spend a very little of this money, which you have sent me, for him, and try to impress on him that it is the gift of friends thousands of miles away who have never seen him and never will, but who wish him only good.

Another case in a bed not far from his is that of an old woman who fell on a jagged piece of wood, tearing away her entire breast. It was a most ugly wound, but she is now rapidly recovering, and will go home in a few days. Another woman is suffering from a large and serious abcess. Near by, in another bed, lies a little boy, about eight years of age, who was brought here by his father about two weeks ago. He had fallen from a tree and broken his arm just above the elbow. The mother had taken him then to a native medicine man who put on a number of thin bamboo strips (very good splints), but had bound them down very tightly with wyths of cocoanut fiber. The little fellow was moaning and crying when they brought him here. The whole arm was dead, from the tight pressure applied. In fact, it had been so for three or four days, and was quite offensive. He had high fever, and no doubt would have soon succumbed. I amputated at the shoulder, and he is now nearly ready to leave the hospital.

I could write pages, and scarcely know where to stop, but will do so now. Thanking you again, and those who have kindly made up this sum to send out here for use among these people, I beg to remain yours very sincerely,

Madura, Nov. 9. Frank Van Allen, M. D.

BASSWOOD AND CLOVER HONEY.

HOW AN UNEDUCATED TASTE FAILS TO DISTINGUISH THE DIFFERENCE.

Friend Root:—Gleanings came to hand today, and I noticed your editorial on "feeding bees sugar to make honey." In reading your question, if it were really true that those students could not tell basswood honey from sugar syrup after it had been fed to the bees, it struck me that I could offer a probable explanation of that fact. As you may be aware, our apiary is situated almost in the business part of the town of Niagara Falls. We have one window of a building facing the street, fitted up with a fine display of honey, which attracts many customers, so that we dispose of nearly all our honey directly to the consumer. Often, when a customer asks for honey, I will say, "Which do you prefer, the clover or basswood?"

"Well, I don't know. What is the difference?"

"The difference is in the flavor. Taste them and see which you like best."

"That tastes pretty good. What is it?"

"That is basswood; now try this."

"Why," he remarks in surprise, "I don't see any difference; both taste alike to me."

"Does it? Well, try the basswood again."

"Oh, yes! I see now there is a great difference in the flavor."

I have tried it many times, and it is almost invariably the case, that, if the basswood is tasted first, the average customer does not detect any difference between the two kinds of honey; but if the order is reversed, and the clover tasted first, its milder flavor is noticed at once, and generally preferred.

Niagara Falls, Ont. W. H. Brown.

[You are probably correct. After eating basswood honey we have oftentimes been unable to get the full flavor of certain kinds of sauce. In a similar way, novices might fail to detect the difference between basswood and clover honey.]

WHICH WAY SHOULD HIVES FACE?

G. M. DOOLITTLE PREFERS THE SOUTHEAST.

Question.—"All things considered, which way should hives front, in order to obtain the most profit from the bees—east or west, north or south, where they are wintered on the summer stand? and which way when they are wintered in the cellar?"

If I am to understand by the last part of the question that the inquirer thinks that it makes a difference which way the hives face while in the cellar, I will simply say that he is making a mistake, for I can not see how it could make any possible difference in a cellar of even temperature and total darkness. If there is a window to the cellar which admits light, it is better to darken the window; yet at my out-apiary cellar the people don't want the cellar dark, so I face the hives away from the light, and, so far as I can see, they winter just as well as in a perfectly dark cellar. But to the other question, which way should they face while on their summer stands? Some seem to think that it makes no difference which way the hives face, but I think otherwise, especially in winter. I have had hives facing almost all points of the compass, and those doing the poorest faced the north, while those facing the southeast invariably did the best. I have lost colonies in winter facing the north, when those facing the south and east would have good cleansing flights, and be in good shape for another long cold spell, the others not flying at all on account of the sun not shining on the entrance, hence died with diarrhea, as it is called, by not having a chance to void their excrement.

Again, in summer, bees in hives facing the sun will generally work longer each day than will those whose entrances the sun never shines upon. Once more, the prevailing winds are from southwest to north, in this locality; and where hives face the west or north, more stores are consumed in keeping up the heat of the cluster where the prevailing winds blow directly in at the entrance, carrying off the heat generated by the bees.

INCREASING COLONIES.

Question.—"Having 17 colonies of bees, and wishing to increase them to 50 next season, I should like to know the best way of doing it and still get some surplus honey."

A large increase of bees and surplus honey at the same time is something which is not very likely to occur; still, there are ways in which it is sometimes accomplished. One of these ways would be to let the bees swarm naturally, hiving the first and second swarms, returning those which came out after the second. Put sections on the first swarms, having them in contracted brood-chambers; and if the swarms come early enough in the season, box all the old colonies as soon as the young queens commence to lay. A still better way would be to keep the colonies from swarming as much as possible, hiving the few swarms which did come in contracted brood-chambers as above, and, six days after any swarm issued, divide the old colony into nuclei with a queen-cell for each. Occasionally, as needed, to keep those not having swarmed from taking the swarming fever, take frames of brood from them and give to the nuclei, thus building them up. Replace the frames of brood taken, with frames filled with comb foundation, thus preventing the building of drone comb. If successful, as you should be, seven of the colonies swarming would give all the increase needed to make the fifty, thus leaving ten to roll up all the surplus they possibly could were the same ten worked for no increase.

RIPENING HONEY.

Question.—"What is the best plan of ripening honey where we can not afford to wait until it ripens in the hive?"

I am not sure that there could be a locality or circumstances where "we can not afford to wait" for the bees to ripen the honey in the hive. We used to think we could not afford the combs to use in tiered-up hives necessary to wait till the end of the honey season, but I now think this a mistake. Not affording the combs, the bees had to remain idle while the honey was being sealed, which was a loss of time, so the honey was extracted every three or four days, when it was thin and unfit for use; but in these days of comb foundation, much the better way is to tier up the hives, adding foundation as needed, letting the bees seal the honey as far as possible, when it is to be brought into a warm room, and, when thoroughly warmed, it will be little more work to extract it than it would be were it taken from the hive when two-thirds sealed, as was considered the proper time years ago. Honey obtained by this tiering-up plan is superior to that secured in any other way, increasing the demand for extracted honey in the markets, instead of decreasing the demand as the honey of ten to fifteen years ago did.

If you *must* ripen honey out of the hive, I know of no better way of doing it than to place it in tin cans holding from two to three hundred pounds each, putting these cans in a temperature which can be maintained at from 90° to 100° for a month or so, leaving the top of the can open, and tying cotton cloth over it to keep out the dust and insects. If you have the means, and are in a hurry to have the honey ripened, it can be done by slowly running the honey over a zigzag evaporator, which is kept at the proper temperature by heated water or lamps, so that it will ripen it fast, and yet not scorch or change the flavor of the honey. But let me advise you to let the bees take care of the ripening part. G. M. DOOLITTLE.

Borodino, N. Y., Dec. 1.

A SUGGESTION FOR CHRISTMAS.

DR. MILLER TELLS WHAT TO GET FOR THE GOOD WIFE.

This is *not* about bees. But I want every man who has a wife he cares for to read it; also the young man with a sweetheart—a sweetheart that will soon be his wife. I want to say something to you about getting a Christmas present for your wife. You're troubled to know what to get. Perhaps you can think of nothing appropriate, or, if you do think of something, it costs too much. Now look here, John; it isn't altogether what a thing *costs* that makes it valued. It's more the amount of love and thoughtfulness that seems to be in the gift—at least, with a sensible woman; and you know, John, your wife's a sensible woman.

I don't think a box of candy, no matter how costly, beautiful, or delicious, is the best thing. It isn't the finest compliment to her good taste, suggesting that she has no taste except that connected with the gustatory nerve. Besides, she'll divide it with you, and it looks too much like getting something for yourself. And it's eaten up right away, and that's the end of it. Something for herself alone, something that lasts, is better.

I knew a man who had money enough so he didn't need to count the cost; and every Christmas, whatever else he might get her, he gave his wife a pound bottle of "White Rose" perfumery, her favorite kind. It had the merit of frequent use, constantly reminding her, whenever she used it, that it was her husband's desire to give her pleasure. Being repeated each Christmas, it lacked the merit of novelty and surprise.

A periodical is appropriate. If your wife has not some such paper as the *Ladie's Home Journal*, it will please her more than a gold ring costing three times as much. Twelve times in the year it comes as a fresh gift.

But I know of something that will just exactly suit her, and it's something that you can afford. You know, John—or if you don't I do—that you're not as good to your wife as when you first married her. Oh! now don't go to getting into a passion because an old friend tells you the plain truth. Of course, you don't come home drunk and abuse her, as does Brad Simpson, the old wretch, and your wife thinks you're one of the best of men; but then, you don't show that same tender care for her that you did when you were courting her. Now, if you can give her the same lover she had then, one who is all the time trying to make things easier for her, and trying to help her, it will be the most appropriate present you can give her, and a rare surprise as well.

To particularize, suppose every morning, when she puts on oatmeal to cook (you know she thinks it better to cook it on the stove without a farina-boiler), while she is trying to do two or three other things and at the same time keep the oatmeal constantly stirred to prevent its burning, suppose you take her place at the oatmeal stirring. Your face may as well be roasted as hers, and it will make her feel young again to think that she has the old John of long ago back again.

Or, if she's boiling some milk, and is so busy with other things that there is danger of its boiling over, it will not hurt you a bit to watch it for her.

Yes, I expected just that reply from you, that it would be very nice to help your wife, and you're sure she would appreciate it, but that you have something else to do and can't spend all your time over the cook-stove.

Well, now, I'll tell you just how you can manage it, John, to do the little acts I have specified, and a hundred others; to do them not only one morning, but every morning, noon, and night of every day in the year, and it sha'n't cost you a minute of time, and only 26 cents of money. Send 26 cents to A. I. Root and tell him to mail you one augite stove-mat. If you want to be extra kind to her, send for two, for my wife thinks she needs two. I almost wish you didn't need to send to friend Root, but somewhere else, then you wouldn't think I'm writing this merely as an advertisement; but then, I'm not going to stop doing what I know is a real favor to you, just because it comes in the form of an advertisement; and when, for such a small outlay, you can get so much help, and help of the most efficient kind, too, I feel very sure I'm doing a great favor by telling you about it.

I had an augite stove-mat sent by mail. When it came I didn't feel as hopeful about it as before I saw it. It looked like a piece of pasteboard bound with tin, likely to burn up the first time it got over a hot fire. But my wife said she'd give it a fair trial. First she laid it on the hot stove for ten minutes before putting any thing on it. I don't know the object of that, but it was according to directions. It didn't take fire and burn up. Then she set a pan of milk on it. By and by it began to puff up as milk does when it boils. She thought she'd better take it off, so it would not boil over on the stove. I told her it would be nothing so terrible to have it all over the stove, and she let it boil for a long time. It puffed up in a very threatening manner, but never dared to boil over. She was quite jubilant on finding that the bottom of the pan was not at all burnt—only a thick coating, easily scraped off.

Then she put on it a dish of oatmeal to cook. After letting it cook a long time she came with a glowing face to tell me, "It's a perfect success! Oh, it will be *such* a help!"

Then she tried a corn-starch pudding. "It's a supreme success," came the report; and then with unusual enthusiasm she recounted some of the things in which the new mat would be such a help.

Now, I feel sure that, when you get one, you will thank me for calling your attention to it, and your wife will be very thankful. I shall send for a number to give as Christmas presents to friends, and I hope friend Root has a large stock, and that Christmas may take them all.

Marengo, Ill. C. C. Miller.

TIN COMB.

RESULTS OF EXPERIMENTS IN THIS LINE IN GERMANY.

We give below a free translation of what C. J. H. Gravenhorst says on the above subject, in his journal, *Illustrierte Bienenzeitung:*

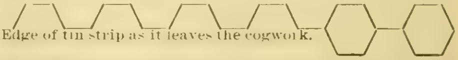
Concerning the tin comb of Mr. J. Steigel, of Pernersdorf, near Jetzelsdorf, Lower Austria, we made a brief reference in Vol. 11, and are to-day in condition to inform our readers further. The next thing to do to make this comb profitable to the bee-keeper is, so the inventor informs us in a letter, to render it as acceptable to the bees as the natural comb. At best we should beware of cells only 15 mm. deep (⅝ of an inch), when the bees require those that are from 25 to 27. In the latter respect they should be comparable with the natural product. These combs remain absolutely broodless, are fully as light as natural comb, and actually surpass the latter in durability. Further, the inventor says, they are the best swarm-regulator. Steigel wants a strong colony with only as much natural comb in the brood-nest as the bees need for rearing colonies up to the requisite strength; otherwise he gives them tin comb alone.

That such combs will be as strong as common combs in extracting, nobody will doubt. Mr. Steigel is also of the opinion that, with tin combs, the hitherto non-extractible heath honey can be taken out. Such honey always tears wax comb in extracting. If that proves to be the case, tin comb for bee-keepers who harvest heath honey will be of great value. Suppose, however, that, in spite of this, the heath honey should remain fast in the comb, then the hopes of the inventor will not be realized.

He thinks he can, without difficulty, construct a comb whose middle wall can simply be withdrawn, so that the cells will then form a hexagonal network. Perhaps one might replace the cells with double bottoms, the first of which is perforated, the second covering the first, but which can be removed at extracting time. We must confess, however, that we have no faith in this idea. Attempts to extract heath honey from the Steigel combs have hitherto been found impracticable—at least, no reports have as yet reached us. Very likely the present year has been unfavorable thereto.

For more than ten or fifteen years the Americans have tried, with various materials, including tin, to make foundation. But all such attempts have been failures. But perhaps the American tin used was not prepared in the same manner that the Steigel was, and so was less available. In regard to the preparation of his tin comb, Mr. Steigel reports to us the following:

Tin strips, of the finest zinc-tin, No. 1, as wide as the cells are to be deep, are shoved through a small cogged-roller work. They receive thereby the shape shown in the cut. These cell-strips, so prepared, are now cut with common shears, four or six at a time, in pieces as long as the comb is to be broad, and laid together, thus forming cells, two of which are shown. Now begins the putting together of the comb on a board as large as the required size of the comb. On this board the strips are now put up edgewise, after the edges of contact are fastened together. After a short time the finished comb is raised from the board, and then follows the wax bath. The bottomless comb is dipped twice in melted wax—the first time entirely, and the second time only a millimeter, so that, on the surface of the wax, a thicker layer will form, which, when necessary, the bees can use to draw the cell out to its full length. The comb now receives a bottom, serving as a middle wall. Now take a sheet of tin, some five or six millimeters larger than the comb is, and bend, by means of two strips of wood, the edge of the tin over so as to form a shallow dish. This is to be placed on a warm stove, spread over with wax, and the comb laid on it. In this way the one-sided comb is made ready. Two one-sided combs will form a two-sided one. The combs are fastened in the frames with little pegs. The placing of the tin combs goes on so rapidly that one person can make 40 or 50 a day.



Edge of tin strip as it leaves the cogwork.

Mr. Steigel has prepared, at different times, in his primitive way, cells of full depth, made of pure wax. As with the strips of tin, he places his strips of wax together. But these are not manipulated with the rollwork, as shown above, but with an apparatus similar to the Ritsche wax-press. The strips of prepared wax are immediately placed in a frame, and separated by means of a partition of tin, glass, or wax. Although this manufacture of comb with cells full depth might be carried on easily and satisfactorily, yet Mr. Steigel will make no more, of wax, for sale, as it does not pay. Frequently such comb, before using, is, from some unforeseen reason, found to be useless; and especially is this found to be the case in trying to ship it. The finished comb can be most advantageously made at home by the bee-keeper himself; and where he wishes to do so, he can get the necessary press of Mr. S.

SOMETHING MORE ABOUT THE MATILIJA CANYON.

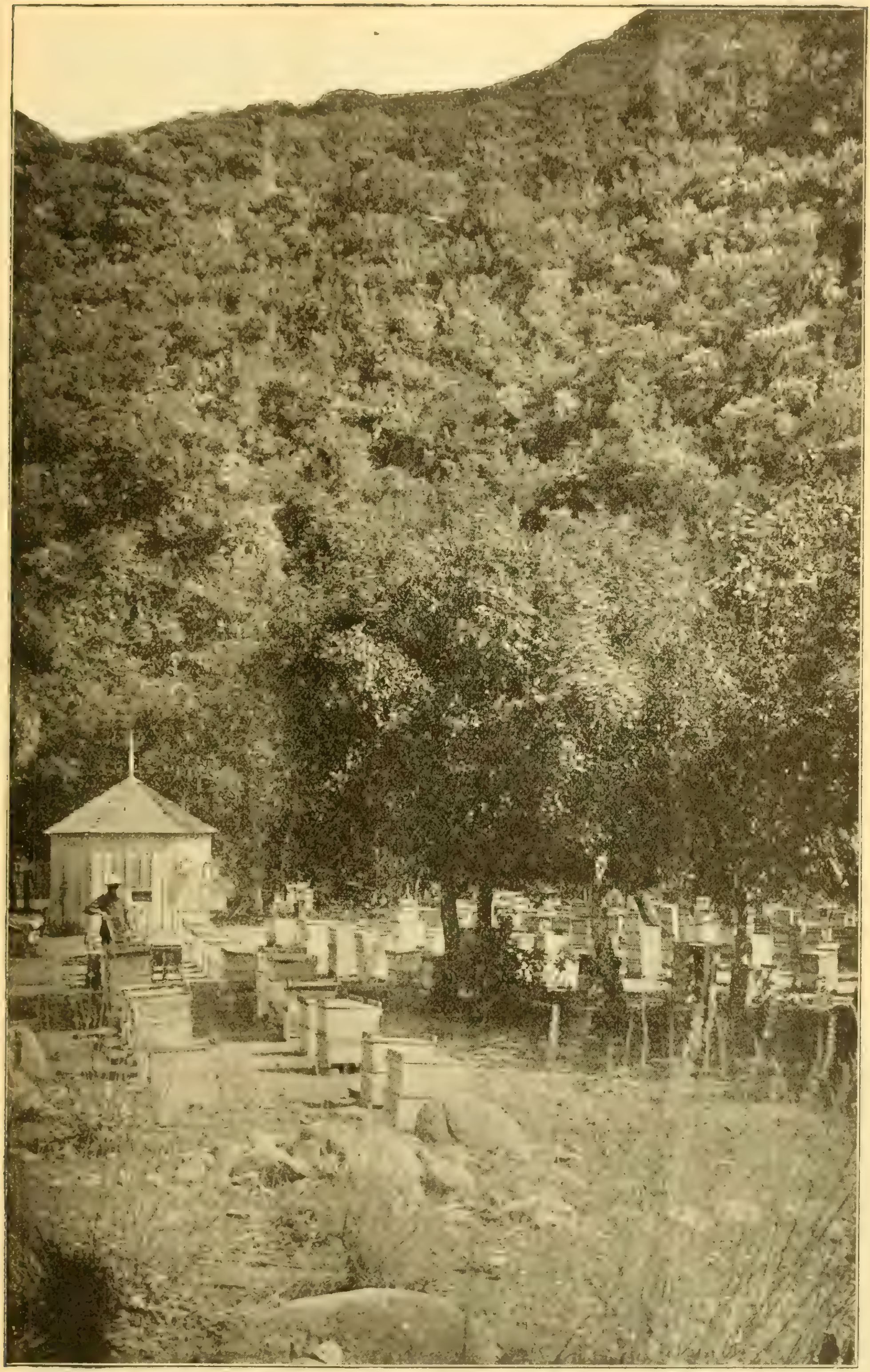
ANOTHER GLIMPSE OF THE WONDERFUL REGION WHERE THE HOT SPRINGS HOLD FORTH.

The accompanying engravings were sent us shortly after my return from California last spring; but we were having so many California views just then we decided not to use them until a little later. With the two pictures comes the following description:

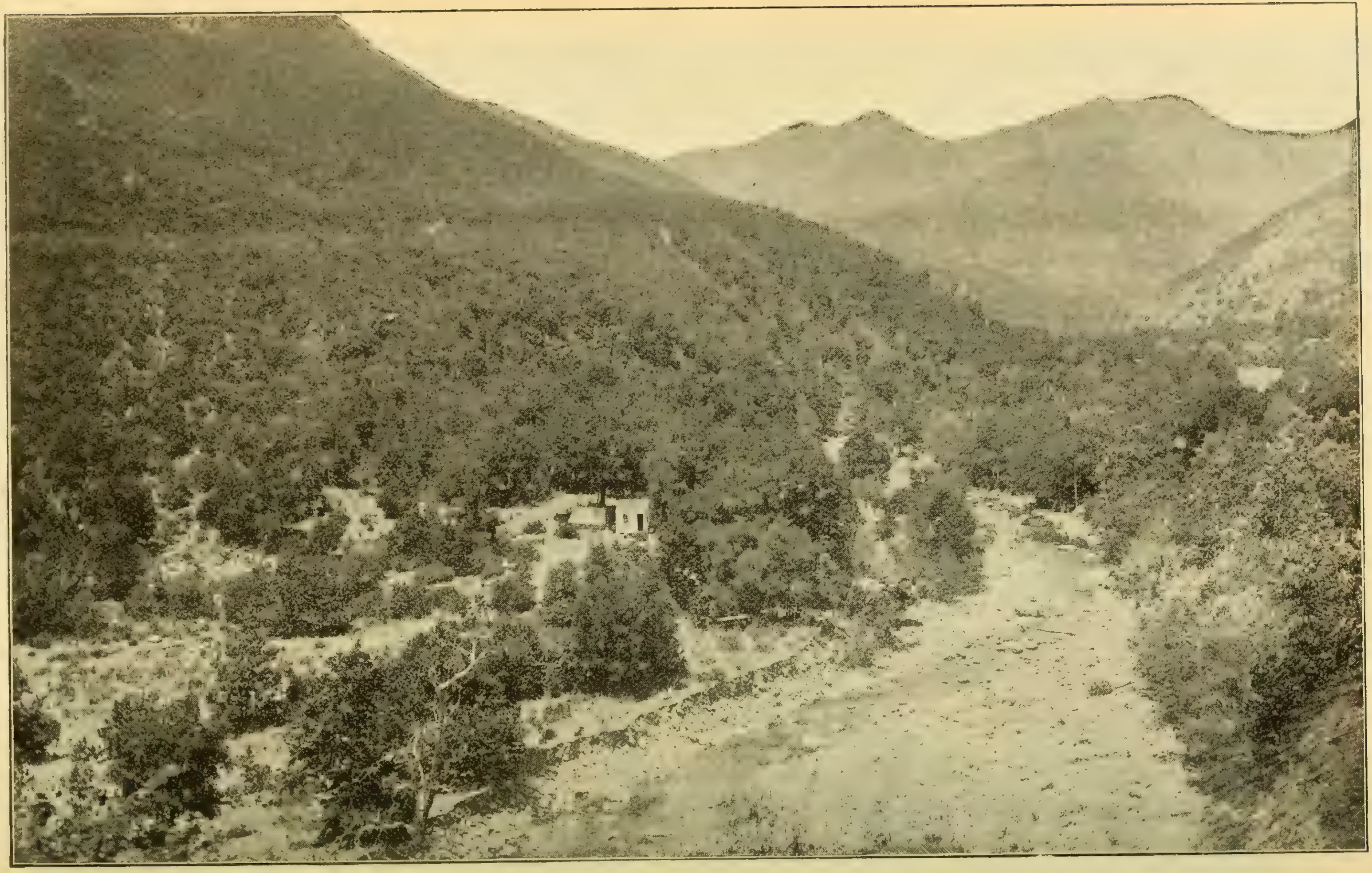
A. I. Root:—I mail you with this a view of my apiary, also a view of the canyon looking up and westward from it. It is located in the Matilija Canyon, four miles above the hot springs you visited. If you had continued your trip that far you would have been well repaid. There are several hot springs one mile below. They are much hotter, and afford more water, than the lower ones. They are not so accessible, therefore not as well known, but are even superior to them for the cure of rheumatism and similar ailments.

The mountain back of the apiary is a most beautiful one. It is as high as or higher than the ones near the lower springs, and is covered from base to summit with an even growth of evergreen chapparal. The California lilac (*Ceanothus Thyrsiflorus*) predominates. It presents a beautiful sight when in bloom. It commences to bloom at the foot of the mountain, and a zone of blue extends upward day by day till the summit is reached. Only a small portion of the apiary is shown in the view, as I have 320 colonies. The range does not yield phenominal crops, but we seldom have an entire failure, and it has, perhaps, during the past four years, made as large an average as any apiary in the county. J. J. Rapp.

Ventura, Cal., March 1.



J. J. RAPP'S APIARY, MATILIJA, CAL.



LOOKING UP THE MATILIJA.

Our readers who have our back volumes will find, by turning to the issue for Jan. 1, 1889, a lengthy description of this canyon, with the Ojai hot springs, etc.; also an excellent picture of the mountain scenery. They will also remember an account of the visit we made last January, when Mrs. Root was along. Before taking my bath, friend Wilkin and I pushed ahead up to an apiary beyond the hot springs. The proprietor, however, was not at home. I felt sad to think that we could not go any further, for if we did we could not reach home by night; and just now it seems to me as if I could not stand it unless I could make certainly one more visit to this wonderful canyon, taking time enough to explore it to my heart's content.

The apiary presented in the picture is one just beyond where we commenced to retrace our steps. The trees, with their dense shadows, and the beautiful shrubs, are covered with foliage clear up to the mountain-peak. You can not see it in the picture; but in the photograph the soft feathery foliage, some of it almost equal to the down of the ostrich feather, makes some of the views rival any thing to be found in our cultivated gardens. Up, up, up, those great mountains loom, until the sunshine is so cut off that sunrise and sunset are but a few hours apart, even during a summer day. In the other picture the canyon opens out, giving one a view of the mountain-peaks beyond; and away up here, where it would seem a horse and buggy would never travel (and I think they never do travel, unless it is in the river-bed during low water), somebody has started a home. Yes, and it is a real home, even if it is away from civilization; for if you look closely, just between the two buildings you will catch a glimpse of a figure. Some woman has consented to go away off here in the wilderness, and make a veritable home indeed. I suppose friend Rapp stays out here only during the honey season, for you will notice his letter is dated at Ventura; but it seems to me, as memory goes back to those days of enjoyment, that there is no place on earth where the natural scenery has stirred my soul as those glimpses during my brief visit to the Ojai springs in the Matilija Canyon. Ordinarily Mrs. Root is completely used up by a buggy-ride of only eight or ten miles; but on this occasion she rode nearly if not quite forty miles, and felt scarcely a bit of fatigue. I ascribed it to that soul-stirring scenery that I felt sure *must* lift her as it did myself almost away from earthly things. She says, as she looks at the pictures, and memory goes back, that it seems almost like a dream; but it was a *beautiful* dream, and one whose memory will long be cherished. Friend Rapp, if you continue to hold forth we may make you another visit still.

LADIES' CONVERSAZIONE.

WOMAN AS A BEE-KEEPER.

Our space is usually so crowded with original matter that we generally do not find room for papers read at conventions; but the one read by Mrs. J. N. Heater, of Columbus, Neb., at the annual State convention of the Nebraska bee-keepers, is so pertinent and to the point that we reproduce it for this department.

Personally, we see no occasion to draw sex, race, or color lines in our calling, the whole matter resting entirely, as it does, in one word—adaptability.

Life is a free-for-all race, and I never did feel willing to grant to the "lords of creation" exclusive right to any thing, and I always contended that I had just as good a right to whistle as my brother had to sing, and exercised it.

We all know the most famous milliner in the known world, as well as the most noted cooks, are men. They have invaded our territory, and, worst of all, carried off the laurels. So, by way of retaliation, we have a perfect right to cross any boundaries. I have never considered it a compliment to woman to be asked if she could make a success of bee-keeping, as it casts a strong reflection upon her mental as well as her physical ability. I always believe any man or woman capable of accomplishing whatever any other man or woman has accomplished, until they have tried diligently and made a failure of it.

There are three all-essential requisites for either man or woman to possess in order to be successful bee-keepers; viz., grit, grace, and generosity. Grit is called to a severe test when one poor season after another follows in unbroken succession for a number of years, and it takes long sighs and close figuring to make the ledger pages balance. Grace is to be exercised when, after your tenderest care and all your sentimental talk about your "little pets," these same little pets administer to you a stinging rebuke, into which they have thrown all the venom at their command, because, perchance, you have dared to meddle with their affairs. And generosity is to be practiced in full measure when your competitor attempts in any manner to appropriate your customers to his own profits, by giving him full details as to his duty, and forgiving him for his wickedness.

In this one pursuit we are all aware that the master can not dictate to the worker, and perhaps this very fact has more to do with woman's success in the business than any other one thing, so used has she become to watching for "just the right time" before she ventures to give her command. She carries the same precaution into her apiary, where she must as closely watch her opportunity before making a demand for any thing if she expects to obtain it.

No woman is so stupid as to suppose for a moment that, if she were to give her bees sections early in the spring, they would go right to work in them, simply because she was the master—or mistress—and they were working for her. Oh, no! She has worked on that line too long for that. She will commence by being real good to them. She will overhaul every frame in the hives, putting them into the best possible condition; then, if they are short of stores, will give frames of well-ripened honey carried over for this very purpose, or feed them tempting sugar syrup, either of which will cause them to build up rapidly—which is just what she wants them to do. When she has beguiled them into filling their hive to overflowing with bees, and has take precaution to have it so at a time when she knows there will be an abundance of honey-producing plants in bloom, she continues her kindness to them still further by giving them a case of sections all nicely filled with foundation; and the poor deluded little dupes rush into those sections pell-mell and fill them with honey in less than no time. That's just what that deceitful woman has been plotting for since early spring, and she gets it.

I need not enumerate the many women in foreign lands, as well as our own, who stand with those at the very head of our business. Aside from those who are writers as well as apiarists, and who are well known to us all through their well-written articles, there are hordes of practical women patiently working away in silence who are in our ranks, and making a success of bee-keeping.

These are but a few thoughts, briefly touched upon, and we now leave it with the wiser ones to suggest further why we should or should not enter into this field of labor to possess it.

THE LIQUOR-TRAFFIC.

SHALL THE UNITED STATES GOVERNMENT PUSH THE LIQUOR-TRADE INTO HEATHEN LANDS AS IT WOULD ANY PRAISEWORTHY AND LAUDABLE INDUSTRY?

Prove all things; hold fast to that which is good.

Very few of my "sermons," as my friends are pleased to call them, have called forth more comment than the one with the above text; and the fact that every letter received thus far, whether on one side of the question or the other, has been characterized by such perfect fairness and kind Christian courtesy, that I am compelled to say from the bottom of my heart, "May the Lord be praised that we have so many good and pure men in our land so ready to hold the fort against the stream of iniquity that seems destined to keep rushing in against us." We have space for only two of these letters; and after these two, I think it will be best if the other good friends will excuse us for dropping the matter for the present.

Friend Root:—I have just read "Ourselves and Our Neighbors" for November, and am much interested. Doubtless you will receive numerous comments thereon, and I am minded to have my say among the rest. I know it is hard for all to see things alike, and I often say, let a man have what views he will on religion, politics, or what not, so long as he is *honest* and *seeks* to be *intelligent* in his advocacy. I must respect them, howsoever contrary they may be to my own.

They are few whose opinions command so great respect from me as your own, all because of their simple, charitable, yet, withal, *earnest* advocacy; and it is this, above all else, that makes me wish that you, and all like you, with your mighty powers for good, might be active politicians in the true and best sense of the word.

You confess your ignorance of political and governmental affairs, and express a wish to become better informed, in all of which you again command my highest esteem. They only can be saved who feel their need of salvation. Nevertheless, "I have somewhat to say unto you."

You hint at Christian duties regarding citizenship; you express your patriotism, and you declare your faith in God for the righting of governmental wrongs; yet, after the most careful reading, I fail to learn from your sermon (I use this word because of its adaptability) whether, in your opinion, I ought, on next Tuesday, to vote the Republican, the Democratic, the People's party, or the Prohibition ticket, in order to advance Christ's kingdom in this glorious land of ours. We take pride in the fact that we are a self-governing people; yet, if I am not mistaken, there is only one little moment in the whole year that you and I exercise our kingly prerogative. We cast our ballots, and thereby exercise our divinely imposed duty of self-government. For another whole year we are utterly shorn of personal authority; yet we are responsible to both God and man for *all* the consequences of our *delegated* power. I feel that, in casting my ballot, I have a grave responsibility resting on me. I earnestly desire to cast it on God's side, effectively if I can, but, if not, then as my earnest protest against the Devil's side.

We claim our land as the Christian's land. Can there, then, be any better way of preaching Christ Jesus than in stirring up God's people to a proper sense of their duty to hold our land for Christ, and to oust the Devil and all his hellish crew? Are Christians who pray "Thy kingdom come" in the line of duty and consistency when they delegate their kingly power of governing to parties and politicians who have been and are turning over our land to Satan by legalizing and licensing a traffic that is one of the chief, if not the greatest of obstacles to Christian progress? I believe God never does any thing for us that we can and ought to do for ourselves. With all reverence for Almighty Power, I am free to declare he can do nothing for an indifferent, lazy people, no matter how many nice prayers they may say.

I believe the evils of intemperance will be promptly banished from our land when God's people set about doing that for which they pray. But people can not be forced into the right way. Such as you, with your charitable zeal, are called of God to persuade men to come up to the help of the Lord against the mighty.

Now, friend Root, as I said before, I am entirely ignorant as to your political affiliations. For aught I know you may be as earnest a Prohibitionist as myself; but if so I heartily wish and pray that you may be led to make it a practical part of your Christian doctrine and teaching. J. M. Brown.

Wheelersburg, O., Nov. 3.

Mr. A. I. Root:—After reading, on page 809, what you say when you "felt desperate," I would suggest that you re-read in a back number your own sermon on the text: "Not by might nor by power, but by my Spirit." In Russia it is possible that the Czar, by the exercise of absolute power, might inaugurate and carry forward a reform that was not approved by a majority of the people; but in this country the government is merely the agent or the servant of the people, and is utterly powerless to enforce reforms not approved by a majority of the people. The "moonshiner" who murders a revenue officer is held for trial where the crime is committed, and is usually tried and acquitted by a jury of his friends. The enforcement of law in any community depends largely upon the people in the community. Before the advent of "local option" a saloon could not live in Oberlin, while in other towns the saloon thrives in open defiance of law.

Educate, elevate, reform the people, and the government will be reformed. It is to be regretted that so many reformers are so careless in handling the truth. This statement, that the government "runs every distillery just as much as it runs the postoffice," may fairly be characterized as a falsehood. It is just as fair and just as truthful to say that the State government runs your factory and market garden. At certain times an officer calls on you to list your property for taxation; and as a part of the machinery required *to secure the tax on whisky*, a government officer is in constant attendance at the distillery. A "government distillery" is a distillery that pays, *according to law*, the taxes levied by the government. God is certainly not on the side of the distillery and saloon. Is it not probable that God is also not *fully* on the side of the reformer who neglects to be strictly truthful? R. M. REYNOLDS.

East Springfield, O., Nov. 7.

HEADS OF GRAIN

FROM DIFFERENT FIELDS.

BEES MAKING THEIR HOME IN AN ORANGE-TREE.

I thought I would write and tell of a rather uncommon swarm of bees I found the other day. No one around here has heard of it before, although you mention it in your A B C as sometimes happening in California, so I thought you might like to hear about it. I was working in my brother's grove; and as I passed an orange-tree I heard a loud buzzing noise. At first I thought it was flies, but looked in the tree and saw a large piece of honey-comb about a foot long and half a foot wide, hanging from a branch. At first I could not make it out; but I soon found that the bees had pieces of comb in other parts of the tree. A lot had dropped down and caught on a lower branch. The bees were working on it, and seem to be doing pretty well. They seemed to be very tame, and did not try to sting at all; in fact, a man put his hand in and pulled some bad comb out from underneath, without disturbing them at all. The tree was a star orange-tree, which grows thick right to the ground. It was about 8 feet high, and was almost in the center of a 60-acre grove which has had no flowers in it for eight or nine months, and so had no special inducement for them to stay. Judging from the amount of comb, they must have been there about three months, and it is a wonder it was not found before. We (my partner and myself) hived it last Tuesday. At first the bees were rather wild, and tried to sting; but we soon smoked them quiet. I think there must have been robbers there before we came. The bees stayed in the hive all right, but we shall probably have to feed them, as they did not have much honey. W. M. FRITH.

Lane Park, Cal., Nov. 12.

HOW TO MAKE SUGAR SYRUP THAT WILL NOT GRANULATE, WITHOUT HEAT.

Mr. Root:—In response to your letter in regard to making syrup by the cold process, I beg to state that I make the syrup for Mr. Deardorff, as well as all we use here in the store, by that process, as it is by far the most satisfactory, since it does not granulate nor sour. Go to a druggist and get a half-gallon percolator and fill it with granulated sugar; then pour on water, and allow it to percolate. You will find this to produce a *heavy* syrup, and superior to any made by the boiling process.

Canal Dover, O., Nov. 7. CHAS. HAAS.

[We are not acquainted with a percolator, but would be of the opinion that it would be too expensive for the average bee-keeper. We once recommended feeding bees with a syrup made by pouring cold water on sugar. It answered very well; but we obtained better syrup by the use of hot water, and we believe all bee-keepers now pretty much agree with us.]

FIELD CLOVER.

Prof. A. J. Cook:—I send you herewith a branch, root, and bloom of a weed to be named. It grows from two to three feet high, and blossoms in October, and some years furnishes quite a little amber honey of good body and quality. Tell us through GLEANINGS something about the plant. Here it goes under several local names. It can be found growing all through our high yellow pine lands. A. F. BROWN.

Huntington, Fla., Nov. 5.

Prof. Cook replies:

This is a very interesting plant. It belongs to the pulse (or bean and clover) family, but looks very much like an aster, or composite plant. It is known in the botonies as "field clover," or *Petalostemon corymbosus*. Gray says, "In Southern pine barrens, it is a very pretty plant." It resembles the asters so closely that I had hardly a doubt of its affinities until I showed it to Prof. Wheeler, when, upon looking at it, I found, as Prof. W. told me, that it was really a leguminous plant. A. J. COOK.

Ag'l College, Mich., Nov. 16.

DO BEES GATHER HONEY FROM MORE THAN ONE SOURCE AT ONCE?

I have seen it asked in your journal, "Do bees carry in honey from different kinds of flowers at once?" This last summer I was in a potato-patch, just as it was in blossom, and I noticed a bee gathering honey. It would fly from the potato-blossom to the wild mustard, and so on till it at last flew off in the direction of the apiary. I am sure from this that bees do carry in honey from different kinds of flowers at a time. WILLIAM PECKHAM.

Solsville, N. Y., Nov. 26.

[When honey is scarce from all sources, bees are pretty apt to get their nectar where they can. If basswood is in full bloom, and the blossoms are yielding well, the bees will notice nothing else, as a rule. A few will be found working on clover, simply from force of habit, even though more honey could be obtained from the basswood.]

BEES AND FRUIT.

We clip the following from the Query department of the San Francisco *Examiner* of Nov. 3:

To the Editor of the Examiner SIR: 1. Will honey-bees puncture through the skin of sound grapes to gain access to the nectar? 2. Why were laws passed compelling bee-keepers to move their bees outside the limits of fruit-growing districts?

East Riverside, Cal. A. F. UNTERKIRCHER.

The editor of the *Examiner* replies:

[1. No. They have no instrument that will puncture grape-skins. If you doubt this, try the experiment of shutting bees up with sound grapes. They will be unable to get any nourishment from the grapes, and will starve to death if kept there long. 2. A case of misinformation. The grape-growers have seen bees empty grapes of their juice, and, without investigating further, have decided that the bees broke the skins.]

QUEENS TO AUSTRALIA.

We clip the following from the Toowoomba *Chronicle*, Australia:

A few days ago Mr. Alex. Bain, of Eton Farm Estate, who is an enthusiastic bee keeper, received an Italian queen from Mr. A. I. Root, the famous bee-keeper of Medina, Ohio, U. S. A. The royal insect was carefully packed in a neat little wooden palace, with 40 workers as companions, and supplied with a store of candy. The journey from Ohio to Toowoomba occupied 37 days, and the queen arrived in perfect health, but 27 of her companions died on the trip. Mr. Bain hopes to have some Italian colonies in operation this year.

Will bees smother if left under a snowdrift, with hives out of sight, sealed covers, and fly-hole open clear across, and ground descending enough for good drainage when the snow melts? M. NEVINS.

[Probably not, but we should prefer to keep the entrances clear. Melting snow might make an entrance sealed with ice.]

OURSELVES AND OUR NEIGHBORS.

Poverty and shame shall be to him that refuseth instruction; but he that regardeth reproof shall be honored.—PROV. 13:18.

I have felt moved to take up the subject expressed in our text because of some trying experiences I have had during the past few months. It is on a matter which I have written and spoken about many times before; and it is a matter that is troubling and vexing the souls of some of the best of our American people just now. What I mean is this matter of work and wages. It seems to me that, in the nature of things, a great part of humanity are destined to work for somebody else. The farming class of community are, perhaps, more their own bosses than almost any other calling; but yet the farmer can not do very much business unless he employs help of some sort: and then comes this vexing matter of finding somebody who will do a fair and honest day's work, without constant supervision. If the farmer works *with* his hired man all day long, there is comparatively little trouble; but, like other occupations, the employer oftentimes gets a hired man for the express purpose of doing his manual labor that he may be thus spared to look after and oversee other things pertaining to his occupation. There are thousands of people out of work, and they do not seem to know *why* they are out of work. The worst part of it is, they won't believe it, won't accept or won't heed it if you tell them plainly *why* they have nothing to do; and others say right out that they would rather continue to loaf than to come right down to business. What I mean is this: Many of our best and most successful farmers—T. B. Terry, perhaps, heading the list—declare they will have no man at work on their premises who drinks, swears, or uses tobacco. Well, a great part of those out of work would rather remain out of a job than to give up the things mentioned. Oh yes! they will *promise* to give them up, or keep the fact concealed, that they are guilty of any of these bad practices; but sooner or later, like murder, it comes out.

Now, I am not going to dwell on the above three things in this talk just now. There is something that is continually coming up that is just as bad as any of the things I have mentioned, and I do not know but it is a little worse, and perhaps it keeps more families in suffering and want than the things I have mentioned—that is, when they do not all go together. The thing I have in mind is a lack of conscience—a want of honor or manliness: a disposition to cheat in one way or another just as soon as an opportunity is open. The fore part of our text hits exactly the outcome—"poverty and shame." The habit of cheating is exactly like the habit of strong drink or swearing, or giving way to temper, or using tobacco. It gets a hold upon the human heart, and it is like pulling teeth to weed it out. At first I thought of saying what I intended to say to-day, directly to our helpers. When they get their money Saturday night it comes to them in an envelope. On the outside of this envelope is a record of the number of hours and minutes each has worked during the week. I do not know how many of these helpers read these neighborly talks in GLEANINGS; but the ones who are in the habit of cheating in their work probably do not read them. I have many times asked them the question. No wonder they do not like to hear any of this kind of talk. Neither do they, as a rule, attend the noon services. Although it is not often the case, even professors of religion do *sometimes* so lose their spirituality that they get into these habits; and it is a sad fact to chronicle, that *women*, as well as the men, get led astray in this very way. I know I am finding fault with my fellow-men; but may God give me love and charity while I find fault in the line I am doing to-day. At this season of the year, as usual, great numbers are coming to me for employment. It seems as if the number were greater now than ever before. A good many quite good workmen in different trades and occupations come to me and propose to work for any wages I think proper to give. Perhaps they have learned by past experience that I am in the habit of giving liberally for fair, honest services, no matter what the agreement may be. I like to do a little *better* than I agree; and by the way, friends, this is one of the grand secrets of success in this world: Be careful what you agree or promise to do, and then do a little better than you agree. The world is full of people who fail continually in sticking to their promises and agreements; but those who make it a point to do a little *more* than they agree to do, right along, are scarce, I tell you.

Our people all work by the hour. For many years they marked down on a slate when they commenced work and then marked on the other side of the slate when they stopped work. Thus each one was permitted, as far as the demands of business would admit, to commence and stop when he chose. With the great bulk of our help this plan worked very well. Nine-tenths of our people, or perhaps even mere, would mark down on the slate exactly when they commenced and when they stopped. But during all these years when we practiced this plan, there was almost constantly *some* person—perhaps some of the younger ones—who would discover the slate was not watched very closely, and they would begin marking a little earlier or a little later, as the case might be, so as to get more pay for the time they actually worked; that is, if they came ten minutes after seven, and nobody was around to watch, they would mark it seven o'clock. When one was caught at this he was watched; and when we found it was a regular plan, and not a mistake, the matter was referred to myself. Oh what tussles with the powers of darkness I have had in this very line! Just after the verse I have quoted for my text, there is one containing this startling truth: "It is an abomination to fools to depart from evil." Just think of it, friends! Did you ever hear a truth more pointedly or vividly expressed? The one who is caught in this sort of deliberate cheating seems to take it for granted that he must get out of it by lies, no matter how many it takes to get him out. As I write now, I can not remember that I ever found a person who fairly and squarely owned up to this sort of thing. The text I have quoted calls such people "fools." It seems hard and strong, does it not? Well, just listen: Almost every sinner in this line follows pretty much the same track. At first he says, "Oh! I worked overhours the other day, and did not make any charge for it, and so I just marked a little more time on my slate, and thought it would be all right." My reply is, however, "Look here, my friend, several of us have been watching you. You cheated in your time not only Monday, but Tuesday; and on Thursday you cheated in the forenoon and afternoon. We have also watched you, and taken pains to find out whether there was any overwork or any thing that might possibly excuse you for this sort of irregularity. We have let the matter go until you are fenced in on every side. There is nothing for you to do but to confess your sin and ask God to forgive you, and then turn over a new leaf and do better." You would think the above would bring a confession, wouldn't you? But it does not. I have told the culprit that I had had long experience in this matter; that the excuses he made were the same ones that others had used years before; but it did not make any difference, and I have told at least *three* people that the only explanation that could possibly be given was, that they had taken leave of their senses, at least for a little time, and did not know what they were doing; and I guess each one of them preferred to accept that, or tried to make me believe, that it was a case of "temporary insanity" rather than confess that he had tried to *steal* from the one who was so kind as to relieve his distresses by giving him employment.

A word about this matter of acting the detective in order to find out beyond mistake whether a certain one had deliberately gone into dishonest practices or whether it was only a mistake that might occur on one side as well as the other. Doing this sort of detective business has done more to wear me out and break down my nervous system than almost any thing else in the world. Some of you may say, "Why, brother Root, why do you bother with such people at all? I would not have them on the premises, not even if they would work for nothing."

Well, I have thought that way a good many times. I am afraid Satan has suggested it to me very often. The trouble lies right here: I once knew of a church that was going to have its members pure, and they commenced turning people out. I finally began to remonstrate, but was told, "Mr. Root, we are going to purify our church, even if we expel every last member." You know how it turned out. They kept on expelling until the church was shut up; and by some queer freak it seemed as if those they kept in were worse than those they turned out. I do not mean by this that all our hands are given to *cheating*—God forbid. I simply mean that, if we turned off every one who uses tobacco, or cheats in his time, or is forgetful, or makes mistakes, or is slow, or quick-tempered, or given to puttering, or who is crabbed, and difficult to deal with, or who lacks in judgment, etc., we should not have anybody left. The greater part of these faults and failings can be cured. A plain, kind talk with the one who is at fault usually results, as the text has it, "He that heareth reproof shall be honored." People who own up to their faults and failings will get over them, as a rule, unless it is this grievous sin that I have spoken of—a deliberate determination to *steal*.

Well, after having had so much trouble with the markings on the slate, we procured, at much expense, a registering time-clock. This we have had for three or four years. When one comes to work he selects the envelope from the rack, with his name printed on it, pushes it under the stamp attached to the clock, strikes the knob with his hand, and the hour and minute are printed on the envelope. He can not change it nor make it any different, even if he would, because the time clerk would see it if he did. No changes are to be made without her permission or sanction. This gets us out of the trouble, doesn't it? Oh dear me! It gets us out of *one* kind of trouble, and perhaps it makes it a little *harder* for those who are disposed to be dishonest and untruthful. In exhorting people to temperance, we are often met by remarks like this: "You will never stop drunkenness in this world. If you shut up the saloons they will get it out of the drugstores. People will get it by hook or by crook, when they want it badly." Now, I do not believe much in this sort of logic; but there is an element of truth in it, after all. You can not make people honest by building fences around them. We recognized this in the beginning of our business; and we have fewer locks and keys —fewer rigid rules, and fewer detectives, than perhaps any other similar institution. We rely upon the honor, integrity, and conscience of our people, and we get along pretty well. I wish I might stop here, because I dislike to drag things to light that might wound like cutting with a knife. But sometimes the knife must be used: and I feel that what I have to say may help perhaps thousands to break away from their sins, and may be to get better wages than they are getting now. The text says, "He that regardeth reproof shall be honored;" and the reproof I am about to give you may be needed by a good many people who are working for somebody else.

During the past few months we have had dull times in our factory. Only a few were kept in each of our rooms, and it would have been policy for us to keep only the most faithful; but sometimes circumstances seem to demand that we should favor some who can hardly take care of themselves unless they have something to do. Common humanity would seem to demand this. I have learned to dread dull seasons, because at such times there is almost always a sort of half-heartedness about the work. People do not accomplish as much when they are making up work ahead, as when orders are crowding them; therefore loose ways get in upon us. We have had a political campaign, and there was quite a temptation to talk politics instead of attending to work. Is this right? When you have hired out to work for a man, and have agreed on so much a day or hour, is it right to use those hours in discussing the political affairs of our country? Perhaps there is a revival meeting in your neighborhood. After you have sold your time to a certain neighbor for an agreed sum of money, is it really honest and Christianlike for you to occupy this time in talking about religion? I think not. Of course, we expect everybody to be courteous and neighborly, even if he is employed by somebody else; but whoever hires out, should, if he wishes to get the best possible pay for his services, regard the contract like a promissory note—"For value received I promise to pay —— hours of work for my neighbor." If your neighbor *hires* you to assist in a revival of religion, why, then, of course, it is your duty to carry along your Bible, quote texts, exhort, etc.; but if the understanding is that you are to build fences, I think he would have very much more *respect* for your *religion* if you, during those working hours, refuse to discuss or even consider the matter of politics, or religion either.

There is, however, a kind of religious talk that I think no employer would object to, even during working hours. Suppose one workman should say to his companion, "Mr. Brown, if I were a church-member, as you are, I hope it would prevent me from using my employer's time to light my pipe, and take a smoke just as you are doing now." I do not mean by this that I would want men to stop their work to discuss—at least not at any very great length—the tobacco habit. But it would be quite proper and right to talk religion this much: "Thank you, Mr. Brown; but I will not take any tobacco if you please. I started out a few days ago to be a Christian, and I think a Christian ought not to use tobacco."

In times past, on these pages I have more than once spoken in very high terms of women as wage-earners. My conscience has troubled me sometimes for fear I had given them too exalted a position, or that I had, may be, gone to the Quixotic extreme of imagining that all womankind are saints. If any one has ever had that opinion of me, I think he will get over it when I finish what I am going to say now. Some way it always seems as if it were ever so much worse for a *woman* to act dishonestly than for a man; and therefore some of my sorest trials have been in dealing with women in this very line. Where work is all done by the hour, as it is here, there is a constant temptation to certain ones to want to get in as many hours as they can, or, at least, have the hours counted, and at the same time do the least possible amount of work. I have known women who got so hardened in this sort of thing that it seemed almost as if they made it a *study* to see how they could do the least amount of work, and make it count the largest number of hours. In the basement to our stores there are several rooms that are not very well lighted. They were too low to get in large windows, and the small windows are often covered with piles of merchandise. Well, more than once I have found women in these dark rooms, as we call them, standing in idleness, that they might get credit for more time. The foreman of their apartment had told them that it was quitting time; but by loitering about they could get in fifteen minutes or half an hour more. As they received only small pay, and as this was a matter of only four or five cents, I often let it go, thinking it was not worth making a fuss about; but it was just as I have been telling you. If a sinner escapes detection in little things, he gets bolder and bolder. One of these women accomplished so little that the foreman told me he asked her to put her work all in one place so he could see how much she did during the afternoon. At night she showed a very good record, and he was beginning to think he had been mistaken, and that she was doing more work than he supposed. Pretty soon, however, one of the other hands said he saw her carrying a quantity of finished work from another part of the room to mix in with her own. One who gets so conscience-hardened in *minutes* soon lays hold of *property* without scruple.

In many of our departments, where work will permit of it, we have hands to work by the piece. In this case they do not keep their time at all, and one might think the problem was solved, and that piece work ended the temptation. Don't be too sure. I have known women —yes, bright-looking intelligent women—who, when they worked by the piece, would, if opportunity offered, mix in finished work that they were paid for the week before, so that, when the foreman came to count their work, they got pay the *second time* for the *same work*. Now, dear friends, please bear with me when I lay just one more sin to the charge of womankind. I have known at least two who, while doing the very things I have been describing, would be singing fragments of hymns to try to make me believe they were honest, and loved God's word and his holy teachings—"stealing the livery of heaven to serve the Devil in."*

It pains me to the heart to tell these things; but my prime motive in doing it is, that these poor deluded friends may know that such things can not be done without its being known. When I let it pass, thinking it was a little matter to make a fuss about it, others noticed it and came to me about it until it seemed to be well understood, and yet the poor deluded woman thought nobody noticed or *knew* what she was doing. Sin blinds not only the conscience, but the eye and the judgment. Sometimes it is hard to convince an intemperate man—that is, after he gets sober—that he went reeling through the streets so that everybody noticed it and talked about it, while *he* was perfectly sure that he walked as straight and natural as need be. So with the whole round of sins. Satan persuades the poor victim that he has succeeded in deceiving the whole wide world, when ordinary good judgment and common sense ought to have told the poor deluded one what a fool he was making of himself. I have wondered what must have been these people's thoughts at these times, of God's all-seeing eye; and then it comes back home to me, the fact that I, too, am a sinner. My faults and inconsistencies, perhaps many of them, in God's sight are *almost* as bad as the ones I have been narrating. There is a strange passage in the sixth chapter of Genesis, to the effect that, at one time, God almost or quite repented of having made man. My grandfather, who was a skeptic, used to be fond of quoting it—that the infinite God, the great ruler of all and over all—did things at times that he was *sorry* for after. I used to wonder why such a passage should be in the Bible; but now I begin to get a glimpse of the great truth, even in that strange expression. God honored us by making us free agents; and if we go wrong, and commit sin, we do it of our own free choice. We are all sinners. We all choose voluntarily folly and sin, rather than truth and wisdom; and when I look into my own heart, recognizing that God knows it all, just as I know it all, I have sometimes of late thought it would be nothing strange or unreasonable if he, an infinite being of truth and love, should have been sorry more than once that he ever created and gave liberty of thought and action to such a poor miserable stumbling sinner as A. I. Root. But let us not be cast down, dear friends. Let us only feel the more earnestly that we need a Savior; oh! I need a Savior more than I can tell you. I need the help and influence of Christian friends and companionship; I need the spiritual uplifting power of the prayer-meetings and the church of God. If I should stay away—if I were to receive no Christian counsel or encouragement from friends around me, it seems to me as if I should surely be lost. I need your prayers, I am sure, and we all need the prayers of each other.

Now, if there is one among my readers who is working for wages, and has been tempted into any of the things I have mentioned in this talk, let him read our text again. "Poverty and shame shall be to him that refuseth in-

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*And, by the way, such spectacles as this do more to injure the cause of religion than perhaps any other one thing in the world. I have seen young people whose sense of honesty and truth had been outraged by the sight of professors of religion who did such things as I have described until it seemed as if they would be embittered toward Christianity for the rest of their lives. They say, "The whole thing is just cant and hypocrisy; and so much of it is put on for the sole purpose of getting a better chance to steal, that I beg to be excused from ever going in with that crowd at all." I want to put just one more thought in this footnote. How much is a man or woman worth in business who goes to work in the way I have described? When we hire people we do it with the understanding that they shall labor for the building up and development of the institution they are working for. While they put money into their own pockets, by so doing they are to put at least *some* into the institution. It is expected to be a little richer or better off for the work they do. Now, instead of enriching their employer, suppose they bend all their energies toward transferring his property into their own pockets. How much wages should such a one receive? Had he not better pay double—yes, four times as much, or more—for an honest and conscientious person of the same ability? Most surely. And now, friends, I hope you are catching a glimpse of the reason why at least a great many unfortunates do not succeed in getting work.

struction." I hope some instruction is to come to you in this talk to-day. Please believe your old friend when he tells you that, if you give way to these temptations, even in the slightest degree, they will grow upon you like weeds in a rich soil; and please believe me, too, when I tell you that your friends as well as your employer probably know all about it. May be they think it is a small matter—too small to make a fuss about; but they feel sad and sorrowful while they note it. It is a great blemish on your character—yes, a thousand times worse than some physical defect, especially among womankind, who like to appear well and look well before the world. Why, dear sister, this thing mars not only your spirituality and enjoyment in life, but it hurts you more in the eyes of all good men and good women than any physical defect you can think of. And then remember, again, that last great truth that I have been trying to teach you to-day: "It is an abomination to fools to depart from evil." Suppose, after what I have told you, and even after having read this printed page, these friends of whom I have spoken should go right on, continuing to do this very thing when opportunity offers. Why, you would say such a one is a fool and an idiot, and that is just what the Bible says.

I have felt troubled about speaking thus plainly to-day; and I have prayed over this neighborly talk perhaps more than over any other one during the whole past year; and as I close, I am breathing a prayer to the great Father above, that he may so bless and sanctify this poor work of mine that its faults and blemishes may be passed by and only the grains of truth be gathered in. And may the result and summing up of it all be, through Christ Jesus, to you a merry Christmas and happy New Year; for please believe me, dear friends, when I tell you there can be no *real* merry Christmas, nor happy New Year either, without *honesty* and *truth* in our hearts, that we may make there an *abiding-place* for the love of Christ Jesus—he who came down to earth on Christmas day to be a *Savior* to all who feel the need of something that *only* a messenger from the great God himself can give.

NOTES OF TRAVEL

FROM A. I. ROOT.

OSTRICHES AND AN OSTRICH-FARM.

Just as sure as you are alive, I finished up our travels in Arizona without saying a word about the ostrich-farm. It is a few miles out from Phœnix, among the alfalfa-fields. You see, the alfalfa is just the nicest feed in the world for ostriches. They will live and thrive on it when it is green; and if put through a cutting-box when it is dry, they eat it with great avidity. By the way, there is something funny about the way the ostrich eats. He will gobble up a great lot of dry alfalfa, and, of course, it has got to go somewhere; so it forms itself into a sort of wad, or ball, and then commences making a slow passage—perhaps I had better say voyage—down that long cranelike neck. Imagine a lump as large as your double fist slowly making its way from the head of the bird toward the body. The neck is so distended that the lump of food is plainly visible all the while the ostrich is eating. Well, we hired a livery team and drove out. The streets in Phœnix and the roads in the suburbs were just about as bad as or even worse than any that can be met here in our Medina County clay; and as we were there during the rainy season, it was a pretty big task to get even four miles out of the city. We crossed quite a number of the irrigating canals that one meets everywhere, and found the ostriches in an alfalfa-field bordered by beautiful large branching cottonwoods that grew on the banks of an irrigating canal. We first got sight of the old original trio of birds. Imagine a Brahma rooster so tall that his head is almost as high as a man on horseback, and then you can get an idea of something what the "papa ostrich" looks like. In disposition, however, the Brahma comparison does not apply. The disposition of the game-cock is not quite the thing either, for the ostrich is more like an enraged bull when you go around the inclosure. We decided not to go inside of his domain, as his looks and actions were so warlike. But in an adjoining lot was a brood of chicks. Some of these chicks were pretty nearly as tall as the old fellow, but they were much more slender, and they had a timid look and demeanor that made one think of young turkeys. As we approached their inclosure they came up also, and peered at us with great liquid eyes. Their slender legs did not look as if they could do one much harm; but notwithstanding, I was a little afraid of the strange creatures. My brother Jess, however, crawled through the fence, and went out among them. They evidently expected something to eat. Some of them acted a little bit vicious; and I think quite likely that, if we had run and acted freightened, they might have pursued us.

A young ostrich is, in many respects, unlike any other kind of the furred or feathered tribes. They have a peculiar tipping and swinging gait that tempts one to laugh; and it is more like a young miss of sixteen, who begins swinging herself and putting on airs, than any thing else I can think of. I hope none of the young misses who read GLEANINGS will take offense at this, for I want to say that young ostriches are remarkably graceful—at least most of the time. Jess tried to see whether they would shoo, like geese and turkeys. They did not shoo very well, but he finally got them to cantering down the lot; and when they spread their wings so as to catch the breeze, it was one of the finest sights that ever met my eyes. I should think there were ten or twelve in that brood, of nearly full-grown chicks.

Pretty soon my eye caught sight of another inclosure with a low picket fence around it. Of course, no ordinary fence would hold a full-grown ostrich. He would straddle right over common farm fences. This last inclosure, however, was about the sort you see around a garden to keep chickens out. And what do you suppose we found inside? Why, a whole brood of chicks not much larger than ordinary turkeys. Oh! but weren't they pretty! and they were just as cute and full of fun as a lot of well-fed and mischievous chickens and turkeys. They would pretend to fight each other, and then make the oddest grimaces, spreading their wings, and jumping as if they were in their native deserts. You may wonder where the Kodak was. We managed to corner up the chicks so as to get the group, and I had snapped it once, and was just getting ready for them again, while Jess was making them gallop down the lot. I must remark here, there was no dwelling near the ostrich-farm; and as our time was limited we had not found out where to get permission to make our investigations. The temptation was so great, when we got in among the birds, that we were really making ourselves at home. At just the crisis mentioned, however, the keeper came on the scene. I presume he was not very much pleased to see a couple of strangers chasing his birds, and pointing some sort of machine at his fine brood of chicks. I made haste to make my best apology, and to tell him we were going to take their pictures, and that we would send him a magazine describing his ostrich-farm. They have a little coop to stay in nights; and as it was winter time, the keeper drove them into their inclosure and locked them up. I think these fellows were only four months old. The next brood, if I remember correctly, was nearly a year old. The old trio were full grown. An ostrich is worth from $500 to $1000. Their eggs are worth $5.00 each, and are about as large as the head of an infant. You remember what I said about eggs in Arizona hatching while on the shelf in a store.

Well, this temperature makes it easy to hatch out ostriches at just the right season of the year. Even if the mother-bird does not cover all the eggs, the chances are very good for a good hatch. I think, however, that four or five chicks are as many as they get at a hatching.

There were two, and perhaps three, mature females. I wanted a Kodak view of the old bird himself; and I wanted, above all other things, to get him while he was on the "war-path." I suggested to the proprietor that I could go around on the opposite side of the lot, crawl through the fence, and have my Kodak all ready, so that, when he discovered I was right in the inclosure, I could take his picture when he got the proper distance from me, and crawl through the fence before he would have time to tear me to pieces and chew me up. The keeper thought it was a rather risky experiment, but you know it is right and proper that we should take some risks in the pursuit of science. He told me I had better look out, but said that, if I was willing to take the chances, all right. I was considerably excited at the time; but I remember of thinking I would like to take the picture also of my brother Jess as he watched proceedings. From his childhood up he has always been full of mischief, and he has not got over it yet, even if he is toward fifty years old. Ever since he was a small boy, a peculiar comical expression comes into his face when any mischief is going on. Mother could always tell when we had been doing any thing wrong, by a look at Jesse's face; and when I proposed to brave the lion in his den, and then get out through the fence with my apparatus before he could catch me, Jess just entered into the spirit of the adventure with his old-time boyish love of sport and mischief. He kept close to me, ready, I suppose, in the event that he and the keeper would have to turn in and help to deliver me from the enemy. I crawled through the fence, and challenged the foe to mortal combat. Oh! but you should have seen him bristle up and paw the gravel, like an infuriated beast. He spread his wings, and pranced up and down, taking that peculiar ostrich step I have been trying to describe; and then he came down on me like a rush of mighty waters. It was a hard cross to take my eyes from the bird and look at my camera in order to get it properly adjusted. One thing troubled me—I could not see just how near he was when I snapped the button. I succeeded, however, in getting every thing much to my heart's content; and even though I hadn't the hundredth part of a second to spare, I said to myself, "There, old fellow, that picture will be worth a hundred dollars if you succeed in getting through that hole in the fence before his majesty demolishes you, Kodak and all." I pressed the button. There was a confused rattling inside of the camera, that did not seem quite right. I hoped, however, that it was the excitement of the moment that made me imagine it; and, didn't I just get through that fence lively, as my Kodak rolled in one direction and I in another, while I picked myself up out of the alfalfa! There was my enemy rubbing his breast against the top rail of the fence, and fairly dancing up and down while he bellowed forth his rage. He tried to reach me with his open mouth and fierce beak; but as the head of a full-grown ostrich is not very much larger than your double fist, the head itself is not very formidable. It was those wicked clawlike heels of his that he was itching to twist around so as to give me a stroke.

In many respects an ostrich resembles a fierce domestic fowl. His preamble before doing any thing is something like the strutting of a turkey gobbler; but he kicks with an aim that is usually unerring when no obstacles are in the way. I do not know whether they have ever killed human beings or not; but I have been told they would in short meter if a man were unarmed. If he has a club in his hand, a good muscular stroke across the long slender neck disables the ostrich; but at the same time it knocks a thousand dollars or more out of the pocket of the owner; so the keeper has two reasons to avoid "picking a quarrel" with his birds. I do not know whether the mother-ostrich scratches for her chicks, and leads them about like a mother-hen, or not; but I would give quite a little sum of money for the privilege of spending a day or two where I could see the chicks when newly hatched, to learn more of the strange instinct that governs these wonderful creatures.

Do you ask where the pictures are? Well, my dear friend, when we got to New Orleans I had my Kodak overhauled, and was told that, when I snapped my machine on that big ostrich, I had got to the end of the roll of films—that is, I had taken my sixty pictures. When I snapped it that last time the film pulled off, and every one of the views taken on the ostrich-farm was spoiled. You see, I lost my book of instructions that goes with the instrument, and therefore I did not keep account of how many pictures I had taken, and hence this mishap. I I am very sorry indeed that I can not present you the pictures I so fondly anticipated having accompany this description. But if Providence permits, and I continue to feel as well as I do now, I think the readers of GLEANINGS may feel sure that they will get them some time.

HIGH-PRESSURE GARDENING.

BY A. I. ROOT.

SOMETHING ABOUT WAGONS.

Every market-gardener, and I should say every farmer, who expects to do very much business, should have at least two wagons. During the busy time a successful man can not afford to lose the use of his team, and possibly that of a hired man, because the wagon must be repaired. We have a blacksmith of our own, right here on the premises; but notwithstanding that, we can not well get along without an extra wagon. A good many times our regular wagon contains a heavy load, when a sudden demand from some other direction makes it necessary to unload. I bought a very stout low-down wagon, or truck, that was a great deal out of repair by being left out in the wet, for only $8.00. By paying out nearly as much more on it, we have a wagon that does nicely for emergencies; and, when something gives out on our regular wagon, the team is hitched on to this one, and the work goes on with scarcely a moment's delay. This gives the blacksmith plenty of time to do a good job; and if the woodwork is to be made new, it can be painted even two coats before it is put on to the muddy roads again. By the way, I never can stand it to see a big heavy team, with a good stout efficient man, loafing at the blacksmith shop while repairing is being done. If the shop is several miles off—I wouldn't have a shop several miles off—I would have a hired man who could do a little at it; or, better still, I would get some tools and do it myself on stormy days; and right here is where the second wagon comes in. If your help is low-priced help, it is not so bad. By the way, when I have a good stout team and a good wagon I can not bear to put them into the hands of an inefficient man. If you have a man who is competent to look carefully after the feeding of his team in order that they may do their best, and look carefully after the way the wagon is used—one whose judgment is good as to how much the wagon and horses can draw—you will need to pay him a pretty good price; and when you have got a good, willing, and intelligent man, it is of the utmost importance that he and the team make every hour count, when the weather is suitable. Why, a few days ago it became necessary for us to move some coal, and I found they were starting out with a little over a ton at a load. After I got things fixed to my notion, our big team moved *two tons and a half*, and the roads were not good either. With the former loads there was no profit in the transaction. With two tons and a half, however, we made a very good thing of it.

HAPPY SURPRISES.

After the poor season for outdoor garden-stuff, happy surprises come in very acceptably—at least, they do with me; and the one I have found in the last few days is a big one, I tell you—at least, it is a big one to me. I think I shall have it for a Christmas present. You know how much I have said about hot springs, and lamented that none of them were ever used for heating greenhouses, outdoor beds, or any thing of that sort. Sometimes it has almost seemed as if I *must* have a hot spring of my own. But then, in the region where the hot springs are found there is not any need of greenhouses, and greenhouse products would not command the prices, probably, that they do here. I did not know how I could get a hot spring here without digging a well so deep as to strike the subterranean reservoirs. A jet of gas might do it, but either would cost a good deal of money. Now, what do you think? God has sent me a hot spring right at my own door. Nay, better still: it started right in that new greenhouse I told you about in last issue. The temperature is not that of one of your mild springs, either, for the water is almost boiling hot. I had been praying that God would bless my efforts in both teaching and practicing intensive gardening; and the blessing came within three or four days after that prayer. Oh! there is not any thing miraculous about it after all; but it is a precious gift, and I am very thankful for it, nevertheless. When I described that new greenhouse on page 893, I told you it was to be warmed by exhaust steam running in tiles back and forth under the beds. Exhaust steam, you will remember, has been already for more than a year running under a part of our garden. Well, about a hundred feet from the greenhouse was this six-inch tile that carried the exhaust steam. After the building was all finished it occurred to me that I had made no provision for *water* inside of the house; and then I remembered that I might have laid a water-pipe at the same time this six-inch tile was put put in, for at one point it runs very near one of our underground water-pipes. Then it occurred to me that I could dig up the tile at a point inside of the greenhouse, and push a ¾-inch galvanized iron pipe right back through the tile until the end came to the water-pipe. It was a short job to do it; and while doing it it did occur to me that the exhaust steam would warm the water so that it would be about the right temperature to water the plants. Well, you may think we were all stupid; but it was a downright surprise to me when I first opened the valve, to find the water was almost boiling hot. Before we could put it on the plants it would have to be cooled off. I was as badly off as those friends in San Jacinto, who ran their spring water into a great big tank, and waited for it to cool off so it would be fit to drink. At the same time, *they* purchased wood to warm the rooms of their sanitarium. We did not do so badly as that, I remember of thinking that, if I had a hose long enough to go clear around the greenhouse, and then turn on the water very slowly, it would probably be cool enough by the time it reached the sprinkler. Then I said, "Why, you old stupid! just run an iron pipe clear around the greenhouse, and your building can be heated by hot water." I supposed I scratched my head a little then, for pretty soon it burst upon me that I could put my hot-water pipes overhead, right under the sash, and then I should have overhead heating while the tiles under the beds would give bottom heat; and the very day the idea came into my mind, with the assistance of one man the pipes were up. But I was stupid, even then. I supposed the water would have to be shut off so it would just come in drops, or perhaps run in a small stream. I thought that, if I let it run at all fast, so much cold water going through the pipes would chill them off. Now, the surprise was, to find that the heat liberated in the condensation of that exhaust steam through 100 feet of tile would keep a good-sized stream of water, and the pipes as well, so hot they could not be touched with the hand. After warming my house, there is hot water to spare—enough to run ever so many more hot-beds or greenhouses. My friends suggested, however, that, as the engine runs only during the day, my hot water would be missing when most needed, during the night. But even this is not true. The tile that carries the exhaust steam is, perhaps, 18 inches under ground. The ground is hot, and stays hot, not only over night, but over Sunday; and this Monday morning, when the thermometer stood at only 15° above zero, I was agreeably surprised to find my hot-water pipes quite warm, although a steady stream of water had been going through them day and night. You see, to get the highest temperature in the pipes, we gauge the size of the stream of water by the valve; and to keep the pipes the warmest, it needs a pretty good-sized stream at the outlet. You might think at first that this would draw on our reservoir supplied by the windmill; but the windmill has been standing idle, waiting for a job, for months; so the exhaust steam and the windmill together have given me a spring of boiling water that costs absolutely nothing.

I have mentioned all this in detail, because it does seem to me that it is almost a sin to pay out so much money for coal and wood while the exhaust steam from thousands of engines is going to waste out in the open air. When you see steam issuing from any sort of shop or factory, and spouting out into the frosty air, you can remember that tons and tons of coal are being sent away in vapor. All that is needed is to send this jet of exhaust steam into a line of common draining tile, of size adequate to the amount of steam. Of course, we do not want to put a back pressure on the engine. Lay these tile a couple of feet under ground. They had better be on an incline, the lowest point being right near the engine. This gives a draft of hot air. At the end of the tile there can be some sort of cheap chimney or stack, although this is not absolutely necessary. Now, run your iron pipe or pipes along through this tile so as to receive the latent heat from the condensed steam; then take this hot water into your greenhouse, dwelling-house, or anywhere else you choose, and regulate the heat by governing the amount of water that escapes. I presume likely the same hot water might be used over and over again after heating the plants or dwellings by hot water; and this would be quite a saving over taking cold water from the hydrant and letting it go to waste while still hot. By the way, does anybody know of a firm that makes an apparatus for heating buildings *by hot water* by utilizing the heat from exhaust steam? You will notice that the apparatus I have described is a very cheap one —that is, when made as ours is made.

THAT NEW GREENHOUSE.

So many questions have been asked in regard to this that we are preparing some engravings for it in the next issue. This morning, Dec. 13, I noticed a large squash-plant coming up in one of the beds right over one of the six-inch drain-tiles. This tile is at least two feet below the surface of the bed where this vine came up; and the glass above the bed is not more than two feet distant from the plant; yet a temperature of 15 above zero did not affect tender plants in the least. Perhaps I should repeat, that all our experiments with exhaust steam, under ground, are with a ten H. P. engine. During the daytime it rarely does as much as five H. P.; but after the electric lights are put on in the factory it runs up to fully ten H. P., and then the greenhouse and cold-frames get a good warming-up that takes them safely through the night.

THE VALUE OF A BAROMETER.

Our new greenhouse, as you will remember, is covered with sashes—45 in all. Well, while we were building it we got them all in place one afternoon. None of them were fastened, however. In fact, we had not as yet got ready to arrange the fastenings so that they could be stripped off in the spring, as I have mentioned. There was not a breath of air stirring, and every thing seemed to indicate that there would be no danger in leaving them over night, any way. But I ran over and looked at the barometer. To my astonishment, it was away down. Yes, the fall in only a few hours had been such as to indicate a tremendous storm of some sort. I hurried back, got some long strips of wood, and I presume some of the men thought I was rather vehement about having those strips wired over the sash so securely. Next morning, when I first met one of the foremen his remark was, "Well, I declare, Mr. Root, I am agreeably astonished to see your greenhouse all safe and sound. When I heard that fearful blow last night I felt sure those loose sashes would be blown all over the neighborhood." And so they would have been had it not been for the barometer's timely warning. I have had a little experience with wind taking loose sashes, and it has taught me to watch the barometer when we stop work at night, under such circumstances. Its timely warning saved me a good many dollars.

ONION-SETS IN THE OPEN GROUND ALL WINTER.

I never fail to have onions winter all right. In the first place I set them deep; then if they freeze up I take my double wheel-hoe and put on the turning-plows, straddle the row, and throw the dirt *to* the onions; then in the spring, if I wish them to mature and make large onions, put on the curved hoes and throw the dirt *away*. H. C. CARMICHAEL.

Morristown, Tenn.

GLEANINGS IN BEE CULTURE
A Journal Devoted to Bees and Honey and Home Interests.
Illustrated Semi-Monthly
36 Pages 7×10
$1.00 Per Year.

And God saw that the wickedness of man was great in the earth, and that every imagination of the thoughts of his heart was only evil continually.—GEN. 6: 5.

QUITE by accident this is a good deal of a California number.

DEC. 8, 1892, we sent to the India famine sufferers $7.65 more, which had been contributed by readers of GLEANINGS.

PROF. COOK has just sent in another article on the sugar-honey matter, in reply to the article of Charles Dadant and others; but it came too late for this issue, and will therefore appear in our next—Jan. 1.

EVERY thing in California depends upon the amount of rainfall at this season of the year. Reports show that copious rains are beginning to come, and California bee-keepers are wearing a broad smile. Given enough rain, and the honey-crop is assured.

We have not made any very great promises as to what we were going to do in the way of getting out a holiday number; nevertheless, we have been trying to get up something a little extra, and will let the pages of this journal speak for themselves. We have been obliged to add eight extra pages in order to get in the extra matter.

WE are pleased to announce that George E. Hilton, of Fremont, Mich., was elected to the State Legislature by a large majority, running about a hundred ahead of his ticket. We don't know any thing about his politics, and, indeed, it were better that we do not, because we as bee-keepers all over the country can make our congratulations more hearty in the hope that he is on *our* side.

WE have given our readers our usual full and copious index. That for the engravings is particularly full, and shows that GLEANINGS is just what it claims to be—an *illustrated* periodical. The peculiarity of the index to *correspondents* is, that it is smaller than those of former years. This shows that we now have fewer and better contributors—those whom our subscribers mention the most in their letters, and whose writings they seem most to enjoy.

THE last mail from Australia shows that nearly all the queens we sent to that country in the early fall arrived in good condition, and that, too, despite our fears to the contrary on account of the cholera quarantine regulations and official officiousness from the foreign postal authorities. On account of our success we have several orders on hand to send more queens by next mail. It is now too late, on account of the cold, to send any until next spring—say about May 15th. Queens to Australia go via San Francisco, and the trip over the mountains at this time of the year chills them to death. Our success in mailing is chiefly owing to the fact that we are careful to select the *right* time of the year.

RAMBLER, during 1893, will send some views and sketches of bees and bee-keepers in Mexico, as well as of other portions of the Pacific Coast. He is a veritable rambler—he can not keep still. He likes to get around and see folks, and we are glad that he does, because he is somehow able to make all the rest of us see with his eyes. The Langstroth biographical sketches will continue, with illustrations, into 1893. The Reminiscences will have more to do with bee-keepers and bee-keeping of the early days. There will be brief sketches of the lamented Samuel Wagner—the first editor of the *American Bee Journal*, and one to whom the bee-keepers of the present day are indebted much. You can not afford to let your subscription run out.

MORE ABOUT COMB FOUNDATION.

IN calling attention in our last issue to the superior quality of Root's foundation, as now made, it was not our purpose to detract from the popularity of Dadant's. The testimonial inserted may be understood in that way, as we examine it more carefully; but we did not so intend it. Our friend whom we quoted may be an enthusiastic admirer of the Home of the Honey-bees, and overstated the matter, for we can hardly believe that his statement would be borne out by the facts generally. Dadant & Son make excellent foundation, which is acknowledged the standard, and they deserve the patronage of those in want of this requisite of all progressive bee-keeping.

"BEES, HONEY, AND HOME INTERESTS."

WE copy the following editorial from the *American Bee-keeper:*

> Old reliable GLEANINGS IN BEE CULTURE will have to change its name unless it sticks closer to the text. The November 15th number contains twenty-nine pages of reading-matter (exclusive of advertisements), and there are fourteen pages of matter which does not bear on the subject of bee-keeping in the least. Wherefore is this thus?

Quite true, neighbor Merrill; but there are some other things that are true also which you have failed to mention. When I occupied so much room in our issue for Nov. 1, I distinctly stated that we had printed and added to that number eight *extra* pages, so that *no one* might *find fault*. Another thing, GLEANINGS is *not* devoted exclusively to bee culture. On the front page of every issue you may read, "Devoted to Bees, Honey, and Home Interests." Now, inasmuch as it has over ten thousand subscribers, and has had for several years, and continues to hold its own, it seems to me it is doing *pretty* well; is it not? A. I. R.

THE WHEEL, FOR CARRYING BURDENS.

ON page 849 I spoke about a low-down package-carrier. Well, I have been using one for about a month. It supports a sack of mail right over the front wheel. The principal part of the weight comes on the foot-rests, and it can be lifted off from the machine or dropped back in its place in a second. With it I carry 60 lbs. of mail with ease. You see, that would make a pretty fair wheelbarrow load, and you sit on top of the wheelbarrow and ride, besides. Thus far this winter neither ice, snow, nor rain has prevented me from making my five daily trips to the postoffice—half a mile away—and back again. Yesterday, the 13th, the stone pavements were so icy that people kept on their feet with difficulty; but the inflated rubber tire carried me safely with a big sack of mail, even over that icy flagging, where it was considerably on an incline. You see, by taking upon myself the office of messenger-boy I get regular open-air riding every working day, no matter what the weather may be, and I scarcely ever finish my trip without a feeling in my heart, "May God be praised for this wonderful new gift." I think it is going to give health, strength, life, animation, and enthusiasm to thousands during the new year of 1893 that is just before us. A. I. R.

THE WASHINGTON CONVENTION.

EVERY patriotic American citizen, at least some time in his life, should make a pilgrimage to the Mecca of his country—Washington. There may never be a better opportunity for some of the bee-keepers to visit that city, and take along their wives. If they feel that they can not afford to go, simply for what they might "pick up" at the convention, they certainly can for the sake of the many interesting things they will see before and after in the city. We have had a number of inquiries about this meeting; and if this means any thing there will be a large attendance.

We expect to be present ourselves—that is, A. I. R. and E. R. R.; and it will give us pleasure to shake hands with our old friends, and any new ones that we may run across. Do not forget that one of the pleasures of all bee-conventions is the usual hand-to-hand face-to-face meetings with bee-keepers whom we have known long over the printed page, but whom we have not seen before. Some of the best things we ever got at conventions were picked up between sessions from some of the brethren who felt a little shy abont telling what they knew before the whole convention.

OUR ROUTE TO WASHINGTON.

IN Ernest's editorial in regard to the convention in Washington, on page 896 of last issue, when he suggested that bee-keepers should get together at Pittsburg on the *morning* of the 26th, it never occurred to him that the 26th was on Monday, and that, in order to make said point of meeting, some of us—perhaps many of us—would have to travel on Sunday. It is a little unusual, and it seems to me that it is a little unfortunate, to have the first day of the convention on Tuesday. But, on the other hand, if we should put it on Wednesday, the last session would come on Friday afternoon, and many of us could not well reach home by Saturday night. This would necessitate Sunday travel, or else spending both Saturday and Sunday in Washington, starting home Monday morning. I suppose this is a matter that devolves upon the conscience of each and every individual; and yet the question will come up, "Bro. Root, some of us would like to know what you and Ernest propose to do under the circumstances." We propose to take another route, in order to avoid Sunday travel, and this will take us into Wheeling at 7:45 P. M. From there we shall take a train direct to Washington, leaving Wheeling, *via* the B. & O., at 12:25 A. M., and arriving at Washington at 12:10 P. M. A. I. R.

L. L. LANGSTROTH — IMPORTANT TO ALL BEE-KEEPERS.

ON page 913 of this issue we take pleasure in presenting to you a large portrait of the Rev. L. L. Langstroth. This picture was taken by our own artist here in Medina, seventeen years ago, when Mr. Langstroth was making us a visit. It shows him in the prime of his life, and the possession of health and mental vigor, and is a very good likeness of him as he then appeared.

It is Christmas time, and many of us would like to have some little Christmas souvenir to place in our homes. We know of nothing more appropriate in the home of a bee-keeper than a nicely framed picture of father Langstroth. Surely there are hundreds who would like this picture. Mr. L. is, at present, beginning to suffer again from his old head trouble, but not so much but that he can enjoy and appreciate any little attention or service from his bee-keeping admirers. Now, to help him in his declining years, and to give him a slight token of the appreciation of bee-keepers all over the land, we will sell these portraits, mounted on large sheets of plated paper, suitable for framing, for 25 cts. each. Of this amount, 20 cts. will be credited to Mr. Langstroth's account, and 5 will be retained by us to cover the cost of printing, mailing, etc. If you send in your orders promptly, we will try to see that the pictures reach you—at least the most of you, if not too far distant, before the 25th—Christmas.

THE MEETINGS OF THE NORTH AMERICAN; WHO ARE ENTITLED TO ATTEND.

Several have written, asking whether they would be permitted to attend the convention of the North American, at Washington, if they were not members. Most assuredly, they would be welcome. Quite a few have attended the meetings in the past, without enrolling themselves. The president always invites those present to become a member by handing in a dollar, because there are expenses to be met; and it does seem is if those who come and listen ought to be willing to pay that much for the privilege of hearing the best thoughts from the best men. Ladies are always enrolled without paying. As editor of Gleanings we will take the responsibility of saying that, should there be any one who comes on this invitation, pays a dollar, and then, at the close of the convention, thinks he has not received the worth of his dollar, if he will present himself to us before we leave for home, with a statement of the fact, we will refund the dollar at our own expense. But let us emphasize this fact: The convention is open to everybody. If any one feels as if he can not afford to pay the dollar down, and become a member, let him come anyhow. Most of us have to pay from $10.00 to $25.00 dollars, including railroad fare, for the privilege of attending this North American convention; and the very fact that we do so is good evidence that we think it pays.

QUEEN-BEES NOW ADMITTED THROUGH THE MAILS TO ALL THE COLONIES OF AUSTRALIA.

On page 782, for Oct. 15, our readers will remember that there was some doubt as to whether the postal authorities would allow queens to be sent to New South Wales, Australia. Mr. W. S. Pender, of West Maitland, N. S. W., has kindly interested himself in the matter of keeping the authorities well posted as to the needs of the bee-keepers, and we are now gratified to see that he has been successful to the extent that there is a strong probability that queen-bees will hereafter be admitted to *all* the colonies of Australia. The following letter, received from the secretary, at the general postoffice at Sydney, will explain itself:

General Postoffice,
Sydney, Oct. 5, 1892.

Mr. W. S. Pender:—Adverting to my communication, dated the 23d of June last, I am directed to intimate that intelligence has now been received from the London postal authorities to the effect that the British Postal Regulations prohibit the transmission of any living creature through the post, and it is not considered expedient to make an exception in favor of bees, even if sent by "letter" post. It is pointed out, that, according to the International circular, issued by the Berne Bureau, experience shows that bees, forwarded by post, sometimes remain alive from seven to ten days, but may die after the third or fourth day of the journey, and that, therefore, apart from considerations of postal expediency, there is reason for believing that it would be impossible to arrange for an exchange of live bees by post between England and Australia, the transit being too long for bees to reach their destination alive. As regards the interchange of live bees *intercolonially*, and between this colony and the *United States of America*, I am to state that the different Australian colonies have given their consent to the interchange of bees, and steps are now being taken which, it is not improbable, will lead to the colonies generally agreeing to exchange the articles in question, with other Union countries (including the United States of America), willing to exchange such articles with them. Of course, as previously stated, any packets containing bees, received here from America, will be delivered.

I have the honor to be, sir, your obedient servant,
S. H. Lambton, *Secretary.*

We hope our correspondent will keep us posted as to the further developments.

"SLUMGUM"—WHAT DOES IT MEAN, AND WHENCE DOES IT COME?—SEE P. 911.

Dr. Miller wants to know the derivation and meaning of "slumgum." It is a word that was coined by H. R. Boardman, to designate a certain leavings, exclusive of the wax, after melting old combs. We, in turn, gave further countenance to the word by allowing it to be used repeatedly in our columns, as it was suggestive, and seemed to express better than any thing else the article which it was made to represent. We might substitute "wax refuse" or "wax residue," as both would be more legitimate English expressions, but not so precise. "Wax refuse" or "wax residue" might mean the ordinary collections of pieces of combs and little particles of burr-combs that will accumulate in the apiary, but which have not yet been subjected to a refining process. The word "slumgum" gives an idea of dirt skimmings, or refuse, of the poorest sort, and at the same time hints at a trace of wax, propolis, etc. We hear of the slums of the city. "Slum" is derived from the word "slime;" and Webster, in his second definition, defines it as a mucilaginous or glutinous substance. Gum—well, we all know what that is. It is a good old-fashioned orthodox word. As new processes come up in the arts and sciences, it becomes necessary at times to coin new terms; and while these terms should not be incorporated *ad libitum* in dictionaries, they have their proper place in glossaries devoted to the science to which they appertain. All our correspondents have so far seemed to accept "slumgum" at once, and so far have adopted it as a term that is both precise and suggestive.

In reference to the quotation-marks, Dr. Miller failed to make them in the copy, and so we made a guess, to the effect that the last sentence was an inference of his own. The reader will notice that the paragraph in question (p. 875) was *all* the work of Mr. Wykoff.

APICULTURAL TERMS IN THE INTERNATIONAL DICTIONARY IN NEED OF REVISION; DR. MILLER AT WORK ON THE STANDARD DICTIONARY.

Webster's International Dictionary, while it is a work of which we Americans may justly be proud, and while it is unusually accurate and full in its definitions and terms when applied to the arts and sciences *in general*, in the line of apiculture it sadly needs revising. When the work was under preparation, and fearing that, unless something were done, the new Webster's International would contain the same incorrect apicultural terms as the old one, we wrote to the publishers, calling their attention to them, and asking them to submit such terms for revision to Dr. C. C. Miller, a bee-keeper and a scholar—one who would be entirely competent to do the work satisfactorily, not only to bee-keepers, but to men of letters. The publishers acknowledged our letter, and promised to do something of the kind; but it seems that nothing was ever done, and the work came out with many inaccurate definitions, and noticeable omissions that ought to have been incorporated, because they are now a part of the language. For instance, "extracted honey," now used in all market quotations, and used on almost every table in the land, is not mentioned at all. Again, "bee-glue" is defined as a "soft, unctuous matter with which bees cement combs to the hives." "Unctuous" means greasy or oily. Every bee-keeper knows that propolis is not greasy, and that bees do not with it fasten the combs to the hives; they have another use for it. A superficial observer, however, might make such a definition as given above by glancing at the inside of an old box hive. Again, "bee-bread" is defined as a "brown, bitter substance found in some of the cells of honeycomb." Bee-bread may be brown, red, yellow, orange, or green. If it is ever bitter, we were not aware of it. Once more, the International makes no distinction between a *colony* and a *swarm;* and the definitions of both are exceedingly faulty. We might go on and give a number of other examples, but these will suffice to show that apiculture has not received the same painstaking care in that magnificent work that other subjects of equal importance have done.

Funk & Wagnalls, of New York, are preparing a dictionary that will fully rival Webster's International. Being aware of the errors in the International, we begged of the publishers of the Standard not to go and do likewise, and referred them to Dr. Miller. They replied very courteously to our letter, and stated that it would give them pleasure to follow out the line of our request. A few days ago we received a letter from Dr. Miller, announcing that he had been employed, by the firm above mentioned, to do that work. The long and the short of the whole matter is, that we shall have at least one dictionary that will give our industry proper recognition; and bee-keepers, at least for the present, when this work comes out, will take pleasure in referring to it as the "Standard" so far as it relates to the subject of bees. Perhaps we should add, in this connection, that Dr. Miller would be glad of suggestions from bee-keepers generally as to what words should be properly incorporated in the dictionary.

THE COWAN RAPID EXTRACTOR; WHO FIRST DEVISED THE HINGED-DOOR PRINCIPLE OF THE COMB-POCKETS?

A FEW days ago we received a copy of a patent on an extractor, taken out by G. W. Williams, Oct. 7th, 1879, the same having been sent us by the attorneys, presumably, of Mr. Williams. His solicitors, understanding that we were manufacturing the Stanley extractor under license, called our attention to the fact that the Stanley patent, issued in 1884, was an infringement on the Williams patent, under date of 1879, and in proof referred us to the second claim, which reads as follows:

> 2. In honey-extractors, the shaft *b*, provided with radial arms *c*, and hinged foraminous comb-holders *d*, constructed and combined for operation substantially as described and shown.

By referring to the drawing, we see that this claim covers all extractors, the Cowan as well as the Stanley, the revolving pockets of which are hinged at one side, door fashion, in such a way as to allow the combs to be reversed without removal from the extractor. While the attorneys for Mr. Williams had evidently in mind only the infringement of the Stanley, it is evident that the Cowan also would be an infringement, *providing* it was not made and described at a prior date. Now, we have made and sold some few Cowan extractors, and we expect to sell a good many more, and hence we were interested at once. By referring to that excellent little book, "The Bee-keeper's Guide," written by Thomas William Cowan, we find that he made and introduced the Cowan Rapid reversible extractor, *the same thing* we are now making, in 1875. For further evidence we referred to the *British Bee Journal* for that year; and on page 117, Oct. 1, we find the same described in detail. The editor, after describing a number of ingenious devices which were exhibited at the Crystal Palace Bee and Honey Show, which took place Sept. 21, 22, and 23, 1875, says this of the Cowan Rapid:

> The "Rapid" also, by Mr. Cowan, was a much more ingenious affair, and attracted considerable attention. It is all iron; and its revolver, which has no perpendicular spindle, has two wire cases, hinged at opposite corners, into which the unsealed combs are to be placed; and when the honey is extracted from the outside cells, their inner sides are swung round to the approximate sides of the revolver, and the honey slung out without their removal being necessary. There may be some little difficulty in getting the combs into the wire cases, as, unless quite straight and even, their sides would be abraded; but a little ingenuity on the part of the inventor will overcome that difficulty. One other defect, as it appears to us, consists in the fact that, to obtain the reversal of the combs, a portion of each side of the square revolver is taken up, which otherwise would permit of the use of larger combs within it. Some outside observers considered that the iron revolvers would soon become rusty, and spoil the honey, forgetting that the machines were simply patterns, new, and hand-made, and probably unaware that all future machines will be perfectly galvanized throughout.

The description is so minute and accurate, and as it occurred just exactly four years *before* the date of the Williams patent, any court to whom the matter might be referred for decision would at once declare the Williams patent null and void for want of novelty. This would also render null and void a similar claim in the Stanley patent, although it would not affect the validity of the claim covering the *automatic* reversing.

THE BEE-KEEPERS' UNION—SHALL IT BE REORGANIZED? AND IF SO, HOW SHALL IT BE DONE?

IN response to our editorial on page 897, of last issue, Mr. Newman has sent in the following, the same being also submitted to other bee-papers:

> I have carefully read the editorial on page 897 of GLEANINGS for December, and, as therein requested, I will offer a few remarks on the matters at issue.
>
> Mr. Root desires me to "state in a circular letter, the desirability of having the constitution changed, and submit to the members of the National Bee-keepers' Union a voting-blank, with return printed envelope," etc.
>
> The advocates of the measure should certainly be the ones to show the "desirability of the change;" and if Mr. Root, or any other one of its advocates, will undertake that duty, I will quote it in my forthcoming Annual Report and call for a vote on the subject. As I have never *advocated* the measure, it would be quite out of place for me to champion the measure before the members of the Union. I will act in an impartial manner, and refrain from

the discussion, simply to get the full, free, and unbiased vote of the members of the Union.

I hope to have my 8th Annual Report ready about Dec. 20, and then the whole thing can in it be laid before the membership, and the matters to be voted upon can be included in the regular voting-blank for officers. This can be done without extra expense to the Union, and will settle the whole question in a legitimate and authorized manner.

Bro. Root very generously offers to send out 10,000 circulars, voting-blanks, and return envelopes to his subscribers. Why, that will cost $100 for postage alone, besides printing and stationery. Why not request all the bee-periodicals to devote one advertising page to the Union, and print thereon a circular and voting-blank? Then ask the subscribers to fill up the voting-blank and inclose with a dollar for annual dues, to the Manager. That will save hundreds of dollars, and still get at all the intelligent and progressive bee-keepers of America at one and the same time.

If this meets the views of the advocates of the measure, I will get up a voting-blank, and send an electrotype of it to all the bee-papers, for publication as suggested.

I will send this letter to every bee-paper, and endeavor to get the views of the editors; and, if the proposition is agreed to, we will send the electrotype in time for the first issues of each periodical in 1893.

I will also do any thing that seems wise, which may be suggested by other persons; and I hereby request any one who has suggestions or ideas on this subject to offer, to send them to me at once—for "in the multitude of counselors there is wisdom," said an ancient sage. **Thomas G. Newman.**

Chicago, Ill, Dec. 9, 1892.

Mr. Newman is quite right. It would not be the thing for him as General Manager, or, as it were, presiding officer, to take sides in the discussion. If Prof. Cook, the one who proposed in the *American Bee Journal* for Nov. 17, page 665, that the Union accept new functions, will make a motion, stating the desirability of the change, we will most cheerfully second it. If this motion is submitted to the General Manager, in writing, the same can then be again submitted to the members of the existing Union, with whom alone rests the power of modifying the Constitution, by vote.

With regard to submitting blanks and circulars to our subscribers, Mr. Newman's plan is a better one—more feasible and practicable; and Gleanings will cheerfully give space to the consideration of the question, in the manner indicated.

The time is growing exceedingly short before the convention takes place in Washington; a proof of this will, therefore, be submitted to Prof. Cook direct, to save time.

Mr. Newman's management of the Union has been so wise and efficient, that, if it will be out of the question for him to act as chief, he certainly should be retained as assistant or adviser, in the event of the change; then, if necessary, let younger blood do the work.

THE WASHINGTON CONVENTION; REDUCED RAILROAD RATES.

The following, in regard to the North American convention which is to take place at Washington, D. C., on the 27th, 28th, and 29th of this month, has just come to hand from the secretary, W. Z. Hutchinson:

THE NORTH AMERICAN BEE-KEEPERS' CONVENTION.

The North American Bee-keepers' Society will hold its 23d annual convention, Dec. 27, 28, and 29, at the Randall House, corner Pennsylvania Ave. and 15th Sts., Washington, D. C.

This hotel is new, handsomely furnished, and first class in all its appointments, and is the most centrally and beautifully located of any hotel in Washington. The regular rates are $3.00 a day; but to those attending the convention they will be only $2.50. Besides this, if only fifteen members stop at the house, a hall in the hotel will be furnished *free*. Otherwise, the charge for the hall will be $5.00 per day. Of course, there are other cheaper hotels to which those who choose can go. Rates as low as $1.75 can be secured. Or a room at $1.00 a day can be obtained, and meals taken on the European plan.

The convention will be held when all railroads will give a round-trip ticket for the price of one and one-third fare. It may be well to explain, however, that these rates are given only for *local* traffic. In other words, a person who has to pass over more than one road can not buy a *through* ticket and take advantage of the reduced rates. In order to take advantage of the reduced rates he will be obliged to first buy a round-trip ticket over his own road; then, upon reaching the next road, buy one over that, and so on. It may be possible that a limited return ticket could be bought nearly as cheaply as to pay these locally reduced holiday rates. Let all consult their ticket agents in regard to this before buying their tickets. The trunk lines would have granted reduced rates (one and one-third fare), but there must be 100 persons present. Should there be less than 100 present holding railroad certificates, the reduced rates would be withheld. Should we adopt the certificate plan, and then the attendance be less than 100, there would be bitter disappointment and loss, as, had the members not *expected* to return at one-third fare upon presentation of their certificates, they would have taken advantage of other reductions. As it now is, those living on roads leading into Washington *direct* will be all right, while those coming over more than one road can manage as suggested.

PROGRAMME.

FIRST DAY—TUESDAY, DEC. 27.

Afternoon Session—2:00 p. m.—Payment of annual dues; reception of new members and distribution of badges. "President's Address," Eugene Secor, Forest City, Iowa. Discussion. "Grading Honey," Dr. C. C. Miller, Marengo, Ill. Discussion. Question-box.

Evening Session—7:30 p. m. — "Self-hivers," E. R. Root, Medina, Ohio. Discussion. Question-box.

SECOND DAY—WEDNESDAY, DEC. 28.

Morning Session—9:30 a. m. — "Detecting the Adulteration of Honey," Prof. A. J. Cook, Agricultural College, Michigan. Discussion. (Prof. H. W. Wiley, U. S. Chemist, is expected to be present and join in the discussion.) "Varieties of Bees and Their Characteristics," Frank Benton, Washington, D. C. Discussion. Question-box.

Afternoon Session—2:00 p. m.— "What the Department of Agriculture Ought to Do for Apiculture," P. H. Elwood, Starkville, N. Y. "What the Department of Agriculture Has Done and Can Do for Apiculture," C. V. Riley, Government Entomologist, Washington, D. C. Discussion. Question-box.

Evening Session—7:30.— "Shall the Scope of the Bee-Keepers' Union be Broadened?" T. G. Newman, Chicago, Ill. Discussion. Question-box.

THIRD DAY—THURSDAY, DEC. 29.

Morning Session.—Selection of place for holding next meeting. Election of officers. Report of committees. Completion of unfinished business. Question-box. Adjournment.

Just a word in regard to the fewness of the topics. Some of the topics are of unusual importance, and deserve most thorough discussion. It is very unsatisfactory to have an important discussion in full blast cut off short, and perhaps referred to a committee, in order to give room to the next topic. A full convention can bring out all the points much more fully than a few men in a committee room. One suggestion leads to another, and "in the multitude of counselors there is wisdom." The questions in the Question-box (often of importance) are frequently referred to a committee to be answered. A discussion in full convention is much more likely to bring out the truth. If any one has any topic or question that he would like discussed, and will not be present to ask for its discussion, let him write to me at once and I will see that the matter is brought to the notice of the convention. The discussion of a topic often leads to another which it would be very desirable to discuss, but lack of time prevents. It is believed that the above programme will allow a reasonable time for the discussion of these interesting side-questions that are continually springing up. **W. Z. Hutchinson, Sec.**

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CONVENTION NOTICES.

The National Bee-keepers' Association will meet at Washington, D. C., Dec. 27—29. See our editorial columns.

The annual meeting of the Ontario Bee-keepers' Association will be held in the town of Walkerton, Ont., Jan. 10, 11, 12, 1893. All interested are cordially invited. W. COUSE, Sec.
Streetsville, Ont.

The eighteenth annual meeting of the Vermont Bee-keepers' Association will be held in the city of Burlington, Dec 28th and 29th, 1892. Every one interested in apiculture is earnestly desired to be present. As a bee-keepers' association we know no State lines, but will gladly welcome all that come, regardless of their residence. Programs will be published soon, for which address H. W. Scott, 125 Brooklyn St., Barre, Vt.

The Ohio State Bee-keepers' annual convention will be held in the parlor rooms of the Cherry Hotel, Washington C. H., O., Dec. 27 and 28. Arrangements are made for 1⅓ railroad fare on all roads leading into Washington; viz., B. & O.; C., H. & D.; Panhandle, and Toledo & Ironton. Also reduced hotel rates.
MISS DEMA BENNETT, Sec., Bedford, O.

The Southwestern Wisconsin Bee-keepers' Association will hold its next annual meeting in Boscobel, Grant Co., Wis., on the 13th and 14th of January, 1893, commencing at 10 A.M. All members of the association are requested to be present, as the following officers are to be elected: President, vice-president, secretary, assistant secretary, and treasurer. Blank reports will be sent to each member of the association for 1892, with instructions. A cordial invitation is extended to all bee-keepers, and especially to those who would like to join us. Each member will be notified at least one month before said meeting. BENJ. E. RICE, Sec.
Boscobel, Wis.

SPECIAL NOTICES.

DISCOUNTS FOR EARLY ORDERS.

Only two weeks remain to this month and year in which to secure the 4-per-cent discount for early orders. Jan. 1, 1893, the discount drops to 3%, and in February to 2%. We have been getting a nice lot of orders, taking advantage of these discounts, and trust we shall get many more.

NEW EDITION OF OUR CATALOGUE.

Between now and Jan. 1st we shall have a new edition of our catalogue, to the number of 25,000, ready to mail. We are also at work on the March 1st edition, which will be entirely reset in new type, and electrotyped. Of this edition we hope to put out 100,000 or more. If any desire a copy of the Jan. 1st edition, send in your request, and you will receive it promptly. There are quite a few changes from the last edition.

MORE DEALERS IN ROOT'S SUPPLIES.

Bee-keepers in Dixie can obtain many of our goods from J. M. Jenkins, Wetumpka, Ala., and those he makes himself are doubtless equally good. Those in Southern Colorado, in the vicinity of Rocky Ford, can secure what they need in our line through Henry F. Hagen, of that place, who will have a carload within the next few weeks. We have still other distributing points in view, but arrangements are not sufficiently complete as yet to make further announcements in this issue.

HONEY MARKET.

Comb honey has not been selling so readily since our last. Christmas time is almost here, and sales should be better at this time. We still have several hundred cases of the choice Nevada honey, mentioned in former issues, and we should be pleased to hear from those who need such honey.

Extracted honey of good quality seems to be very scarce, and in good demand. We can furnish extra nice in 60-lb. square cans at 10c per lb., or in 160-lb. kegs at 9½. We have 3 such kegs at Bowling Green, O., that we will sell at 9c there for a prompt order.

TRAINLOAD OF SEEDS AND BEE-SUPPLIES.

Our two carloads of bee-supplies for F. L. Posson & Son, Portland, Oregon, left here on the evening of the 13th for Chicago, where they will join a trainload of seven or more carloads of seeds from D. M. Ferry & Co., to the same firm. This special train is expected to leave Chicago on the 20th, via the C. & N. W. and Union Pacific, and will make daylight runs most of the way. You may see notices of it in the papers along the way; and those living on this route may get a glimpse of the train if they are on the lookout for it.

AUGITE STOVE-MATS, AGAIN.

Since our last issue was mailed we have sold over *three gross* of these mats, and they will no doubt make as many housewives happy. See Dr. Miller's article on another page; and if you have not already ordered one, make haste to do so before Christmas is past. Price 20c each; by mail, 6c extra; 6 postpaid for $1.40; one dozen by express, $2.00; by mail, 65c extra. Except to far distant points, a dozen will go cheaper by express. We furnish 6 dozen for $11.00, or 12 dozen for $21.00. Send on your orders.

U. S. OFFICIAL POSTAL GUIDE.

This is a book of almost 1000 pages, 5¼x7¾, with monthly supplements of about 40 pages. It is published by authority of the P. O. Department, and contains an alphabetical list of all postoffices in the U. S., with county and State, a list by States, a list by States and counties, showing the money-order offices, domestic and international, also rates of postage, synopsis of postal laws, rulings of the department, information relating to postal matters, and general regulations respecting foreign mails. It is a book that ought to be in every business office that has much correspondence. The regular price in paper covers is $2.00; in cloth, $2.50, including supplements from time subscription is received till July, '93. The large volume is mailed early in January; but subscriptions should be sent in before that time. We are able to club the paper edition with GLEANINGS one year for $2.40, or the cloth-bound edition for $2.70.

MUSHROOMS—HOW TO GROW THEM.

The above is the title of a new book published by the O. Judd Co. It is written by William Falconer. I suppose that most of you know that mushrooms are quite fashionable just now. If you pay a dollar for a dinner on a dining-room car, on any of our leading railway lines, you will be likely to see mushrooms on the bill of fare. You won't see very large dishfuls of them, even then. At present, mushrooms are selling in Boston and New York at a dollar a pound, retail. The business is constantly increasing, and more and more gardeners or florists are putting them under their plant-beds every year, but still the price keeps up; and, by the way, mushrooms are not such an expensive dish, after all. They taste more like oysters, perhaps, than any thing else, and a very few of them will make quite a dishful for a family—that is, they will give a mushroom flavor to a meat pie, or a stew large enough for an ordinary family. For our family ¼ lb. does very well; and away back here in Medina we are quite content to get 15 cts. for ¼ lb. If you want a whole pound the price is 50 cts. Since I told you about growing them by steam heat we have had them right along, and I expect to have some for supper when I get through writing this editorial. I am going to the postoffice with the mail on my wheel, however, first. You see, that gives me an appetite. May be you would like to grow mushrooms. Well, the book I started out to tell you about gives the fullest possible directions, in plain, easy language that every one can easily understand. Anybody who likes to make garden can raise mushrooms; and as they do not need a bit of sunlight, any out-of-the-way place, under the cellar-stairs or anywhere else, where it will not freeze, will grow them to perfection. The book contains 172 pages, and is full of nice pictures. The advertised price is $1.50. It seems to me rather too much, therefore I am going to offer it for $1.25, even if I do not make very much profit. I presume the publishers excuse themselves for asking a large price by saying that it is the first book of the kind ever published in America. After I have had a little more experience I will tell you how to do it, in my garden talks for the coming year. All the expense besides labor is the stable manure. Nothing else, so far as I know, will grow them. But the publishers claim that the manure is worth just as much for the garden afterward as before. It may be worth as much for some purposes. If you want the book by mail, add 6 cts. extra for postage and packing.

SECOND-HAND FOUNDATION-MILLS.

We have the following list of second-hand foundation machines which have accumulated during the past few months, some in exchange for new machines, others from those who have decided to buy what foundation they use. We give as fair a description as we can of these machines, with the price at which we will sell. We can furnish samples from any of the machines to intending purchasers.

One 6-inch hex., No. N, used a short time in our wax room; in good order; makes fdn. 10 or 11 feet to the lb. Price $10.00.

One 6-inch hex., No. M, extra-thin mill, in splendid order. Price $10.00.

One 6-inch hex., No. K, thin surplus mill, in good order. Price $9.00.

One 10-inch, round cell, No. L, in good order for light brood fdn. Price $14.00.

One 10-inch, round cell, No. I, for light or medium fdn.; in good order. Price $14.00.

One 10-inch, round cell, No. E, old-style frame; made some years ago, but used scarcely any, and in good order. Price $14.00.

One 10-inch, round cell, No. C, old-style frame; in fair order. Price $12.00.

One 12-inch, round cell, No. D, for heavy brood fdn.; roll, same size as 10-inch, only 2 inches longer; one of the original Washburn mills, in fair order. Price $15.00.

One 12-inch Dunham mill for heavy brood fdn.; not so good as the above, but in fair order; will sell for $12.00.

SECOND-HAND MACHINERY.

During the past few months we have bought up several outfits of machinery for making bee-keepers' supplies; and if any of our readers or their friends contemplate putting in machinery we are prepared to fit you out from cellar to garret with everything you need in engines, boilers, machinery, shafting, pulleys, hangers, belting, saws, etc. The following is a partial list of the second-hand machinery we have to sell. If you desire further particulars we shall be pleased to hear from you.

One 20-H. P. Fishkill horizontal engine, rebuilt, and as good as new; would cost new, $400; will sell for $200.

One 5-H. P. horizontal engine and boiler, with engine mounted on boiler, in good running order. Price $150.

One 24-inch two-roll Fay sandpaper machine, nearly new. Price, new, $450; will sell for $175.

One V-groove section machine, nearly new. This is our make, old style, with screw-feed; sold some years ago for $75; will sell now for $40.

One cutter-head, with table complete, for cutting entrances to sections. Old style, but nearly new, and in good repair. Price, new, $25.00; will sell for $15.00.

One double-head tenoning-machine, especially arranged for making the combined rabbet and miter joint of the Simplicity hive, but can be used for making sash and window-screen frames, etc. We could not build such a machine, and sell it for less than $150; we will sell this for $60.

Two extra large saw-tables for general use, to cut off or rip, with counter-shaft attached to frame; worth new, $50 each; will sell for $20 each.

Two four-piece section-machines, as good as new, they cost new, $85 each; we will sell them for $30 each.

Also a large lot of shafting, pulleys, hanger belting, and saws, too numerous to mention here.

RENEW EARLY.

The time is near at hand when the paid subscription of many of our readers will expire. Probably none of you like to be in arrears any better than we like to have you. As an inducement for you to act promptly, and send in your renewals before the time expires for which you have paid, we offer you the choice of the following premiums. Now, please note carefully the conditions on which we make this offer. Those who are in arrears can not claim a premium till they first pay up; then, if they remit for a year in advance, they may for that claim a premium. The premium must be claimed when the subscription is sent; it can not be allowed afterward. Postage for mailing, and full subscription of $1.00, must be sent to secure the premium, and it must be sent *before* your subscription expires.

The list of premiums from which you may select:

DZIERZON THEORY, a pamphlet of 50 pages, in paper cover; price 10c postpaid, or sent free on above conditions. This is something that every enthusiastic lover of the honey-bee should read.

THE CHRISTIAN'S SECRET OF A HAPPY LIFE. This book should be in the hands of every one who desires to live a happy life, and who does not? It is so popular that over 50,000 have been sold since its publication a few years ago. We received from the publishers as many as 1250 in one shipment. This edition was revised and enlarged, so that the book now contains over 200 pages. Price, cloth bound, 50 cts. In paper, 25 cts. Postage extra, 8 cts. for the cloth and 6 cts for the paper bound. A large reduction will be made in quantities. The cloth book given postpaid for two subscriptions, or the paper for one new subscription with your own renewal. Cloth edition given with your own renewal only, and 35c extra, with 8c postage; the paper edition for 15c extra and 5c postage. We have some slightly damaged paper edition that we will give free with your renewal and 5c for postage. If you send one new name with your renewal you may select any three premiums that we give for a renewal, being sure to include the postage; or you may retain 25c in cash for your commission.

PEABODY'S WEBSTER'S DICTIONARY. 25,000 words and phrases, and illustrated with 250 engravings; cloth bound. This is the one we have been selling for years at 15 cts. We thought we had done something wonderful when we offered so large a dictionary for 15 cts., but we are now able to sell them for a dime. Just think of it! Postage extra, 5 cts.

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POULTRY FOR PLEASURE AND PROFIT. 48 pages, and 20 illustrations. A complete little book of instructions. It treats of the best varieties for pleasure and profit; how to house and yard; how to manage; how to feed; diseases, incubation, etc. It is a 25-cent book; but by getting 1000 of them we can sell them for 10 cents. Postage 1 ct.

THE HORSE AND HIS DISEASES. By Dr. B. J. Kendall; 100 pages and many illustrations. Over 500,000 of these books have been sold, because they are so popular and complete, for a small handbook. It gives the symptoms of most diseases, and treatment for the same. This is another 25-cent book that we got down to a dime by taking 1000 of them. Postage 3 cts.

SILK AND THE SILKWORM. This is a complete work of instruction on silk culture, by Nellie Lincoln Rossiter, a practical silk culturist; 32 pages. Silk culture is the favorite pursuit of many ladies in our land; and all who are interested will find this little work very instructive. The price printed on it is 25 cents. but we sell them for 10 cts. Postage 1 ct.

NEW TESTAMENT, NEW VERSION. 434 pages, printed in nonpareil type. This should be in the possession of every student of the New Testament. Even if it does not come into common use, it is helpful to know what changes in translation the New Version gives. Postage 5 cts.

JOHN PLOUGHMAN'S TALES AND PICTURES. By Charles Spurgeon; 128 pages, and a picture on almost every page. John Ploughman talks plainly, and makes a good point in every talk. It is by no means dry reading, either. Postage 3 cts.

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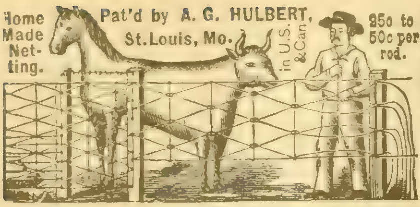
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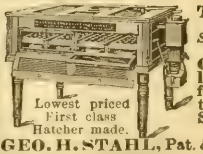

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